

## SEQUENCE LISTING

<110> THE UNIVERSITY OF BRITISH COLUMBIA, et al.  
 <120> BACTERIAL VIRULENCE FACTORS AND USES THEREOF  
 <130> 80021-735  
 <140> NOT YET ASSIGNED  
 <141> 2004-10-29  
 <150> US 60/515,703  
 <151> 2003-10-31  
 <160> 84  
 <170> PatentIn version 3.3

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 <212> DNA  
 <213> *Citrobacter rodentium*

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 gattttaaata aagccgaatt tgataaaatgt cggttcaactg actaccctcg tatatgg 1080  
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 <213> *Enteropathogenic E. coli*

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 ggatttttttgc ttcatatccc agaggatatg cagcgcacatg caccggaaatg cggtaaaaca 180  
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 aatgtctctc agatggcatt agaaataccc agcaccgttc cgggtatctc tggtaaatat 360  
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aaaaatgc	taagcaacag	caatatacca	accactgtat	cgactgctgc	atccactatt	540
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gaagagtgg	tgatcagacc	gggagaagca	gattttaat	atggtgcatc	tccactacag	780
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gttggacaac	ggcatccaa	tccagagg	gtgg	atatcgaa	caataactca	1260
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<210> 3  
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<212> DNA  
<213> Enterohemorrhagic E. coli

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ggatttgg	ttaatattcc	agatgatata	cagcaacatg	cacccgaa	cggtgaaaca	180
acagctctac	tgagctt	aaaagataaa	ggtctgtct	cagg	ctaga cgaatata	240
gctcctcacc	ttgaagaagg	atccatagga	aaaaaa	tggat	atgtttattc	300
aatgttaccc	aatggcatt	agagatac	agt	cagg	catctc tggtaaata	360
gggtgtccagc	taaacattgt	aaaaccagat	attc	catc	aggttttt	420
cagatattcc	ctctgcatga	tgaaataggt	ttaat	aagac	ttcc	480
aaaaatgc	taagcaacag	taatata	accact	tgtcgactat	tgcatcgact	540
ggaacatca	ccactact	gacggt	acc	aagacca	accatgg	600
ggattaacag	ctcaagt	tgtaat	ggt	tcc	tatagt caaaactg	660
aatggatg	agctt	ttgg	agaa	atgg	ccgaa agcaaattac	720
acggagg	gggtt	atc	acc	gcag	atctccat	780
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actaaatat	ccgtt	ttac	caat	ttt	taacc	900
gcagtatcc	gattt	ctg	tac	atgtt	atgggg	960
ggcaagca	cagg	cat	ca	atc	atgg	1020
ttatgg	ctgg	tcg	act	cc	ttt	1080
gctagattc	ctg	actat	tc	ttt	ttt	1140
aataaagca	atatt	gaca	tg	ttt	cccc	1200
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ttaccacatc	ataat	ccatc	aaat	at	at	1320
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<210> 4  
<211> 614  
<212> DNA  
<213> Citrobacter rodentium

<400> 4										
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tgagcgcgt	ta	agg	gtac	tt	gg	ta	gg	aa	aaa	180
tctcagtctt	ga	agat	gaac	at	aaa	aa	gg	aa	aaa	240
cagtatgtat	gata	aaaa	ac	tgt	ctg	at	ttt	tt	at	300
atatccagcg	ag	tg	ga	ag	at	ttt	ttt	ttt	ttt	360
tattccat	gg	aa	gg	ac	t	ttt	ttt	ttt	ttt	420
gtttgat	ttt	ta	aa	ac	tt	ttt	ttt	ttt	ttt	480
taaaactg	tg	cc	at	aa	ca	ttt	ttt	ttt	ttt	540

gattattact gataaattag gtgtcctgta tgctcctgat ggtatcgctg tgcatgtaga 600  
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<210> 5  
 <211> 555  
 <212> DNA  
 <213> *Citrobacter rodentium*

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 cggagacttt acttatgagc aaagaaaaga atttctcagt cttgaagatg aacatcaaaa 180  
 tataaagata atatatcggg aaaatgttga tttcagttatg tatgataaaaa aactgtctga 240  
 tatttatctt gaaaatattc atgaacaaga atcatatcca gcgagtgaga gagataatta 300  
 tctgttggtt ttaagagaag agtaaaaaaaaa tattccatac ggaaaggact ctttgattga 360  
 atcatatgca gaaaaaagag gtcatacttg gtttgatttt ttttagaaact tggcggatt 420  
 gaaggggggg ggggtgttta cagagacggg taaaactgga tgccataaca tatctccatg 480  
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 tgctcctgat ggtat 555

<210> 6  
 <211> 990  
 <212> DNA  
 <213> *Enteropathogenic E. coli*

<400> 6  
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 gaaagaaccc ctattcttt tcagtggtt gaagcaaggc cagagcgata cgaaaaagga 180  
 gaagtaccaa tattgaatac caaagaacat ccgtatttga gcaatattat aaatgctgca 240  
 aaaatagaaaa atgagcgtat aatcgggtgtc ctggtagatg gaaattttac ttatgaacaa 300  
 aaaaaggaat ttctcaatct tgaaaaatgaa catcaaaaata taaaataat ctaccgagca 360  
 gatgtggatt tcagcatgtc tgataaaaaa ctatctgata ttaccttga aaatatccat 420  
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 gagttaaaaa atatcccaga aggttaaggac tcttgatttgc agtcatatgc agaaaaaaga 540  
 gaacatactt ggttgattt ttccaggaat ttggccatat tgaaggctgg aagtttgg 600  
 acagagacgg gaaaaactgg atgccataac atatcgccct gtagcggatg tatatatctt 660  
 gatgccgaca tgattattac cgataaatta ggagtcctgt atgctcctgaa tggatcgct 720  
 gtgcatgtat attgtatga tgagataaaa agtcttgaa atggtgcgt agttgtcaat 780  
 cgttagtaatc atccagcatt acttgcaggc ctcgatatta tgaagagtaa agttgacgct 840  
 catccatatt atgatggctc agggaaagggt atcaagcggc attttaacta ttcatcgta 900  
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 accagatgt ataccagcag ttcatggtaa 990

<210> 7  
 <211> 990  
 <212> DNA  
 <213> *Enterohemorrhagic E. coli*

<400> 7  
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 gaaaaaaccc ctattcttt tcagtggtt gaagcaaggc cagagcgata cgaaaaagga 180  
 gaagtaccaa tattgaatac caaagaacat ccgtatttga gcaatattat aaatgctgca 240  
 aaaatagaaaa atgagcgtat aatcgggtgtc ctggtagatg gaaattttac ttatgaacaa 300  
 aaaaaggaat ttctcagtct tgaaaaatgaa tatcaaaaata taaaataat ctaccgagca 360  
 gatgtggatt tcagcatgtc tgataaaaaa ctatctgata ttaccttga aaatatccat 420  
 aaacaagaat cataccctgc cagtgagagg gataattatc tgtaggctt attaagagaa 480  
 gagttaaaaa atatcccaga aggttaaggac tcttgatttgc agtcatatgc agaaaaaaga 540  
 gaacatactt ggttgattt ttccaggaat ttggccatgt tgaaggctgg aagtttgg 600  
 acagagacgg gaaaaactgg atgccataac atatcgccct gtagcggatg tatatatctt 660

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cgtatcatt	atccagcatt	acttgcaggc	ctcgatatta	tgaagagtaa	agttgacgct	840
catccatatt	atgatggtct	aggaaagggt	atcaagcggc	attttaacta	ttcatcgta	900
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<210> 8  
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<212> DNA  
<213> *Citrobacter rodentium*

<400> 8						
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cccgtaaaag	ttgatgat	tcaatcacta	acctgtaccg	aattatatga	atacgtatgtc	420
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gttccgc	acttgc	tgcagagcc	gatcgtgaag	ctcatctt	ggacgtaa	720
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<210> 9  
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<212> DNA  
<213> *Enteropathogenic E. coli*

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cgaataccac	tttccgc	agattt	aaacgtatac	aaagtgtat	acgcgcgtc	180
catgacagcc	gtac	ggct	tatcgatc	catacgtcg	atatgatcg	240
cttgatgtt	tgagccatc	acagacattt	cgtgtatgc	taagctatgg	cattcataat	300
gagaaggtac	acattgg	cattaaatac	agaaacgaat	acgagctt	cgagaaatct	360
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ggcaagagc	caatttccc	catttgc	g	acgataacga	agagccttat	480
gtcagtttta	gtgttgc	agatactgac	tcttatgaga	tgccatcg	gcaggaaggg	540
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gtgtctaa	taggat	tttccgcgg	tttccgcgt	tttccgcgt	ggctatcaac	900
gataatttac	aggatgcaaa	tca	ctgtatcatg	g	tatctttaca	960
tttccggat	tttccgcgt	tttccgcgt	tttccgcgt	tttccgcgt	tttccgcgt	993

<210> 10  
<211> 993  
<212> DNA  
<213> *Enterohemorrhagic E. coli*

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cgaataccac tttccgcagc agatttaaagc aacgtatacg aaagtgtaat acgcgcgtc 180  
catgacagcc gtagcaggct tatcgatcag catacagtgc atatgatcgg caacactgta 240  
cttgatgctt tgagccgatc acagacattt cgtgatgccg taagctatgg cattcataat 300  
gagaaggta acattggttt cattaaatac agaaaacgaat acgagcttaa cgaagaatct 360  
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gggcaagagc caatttccc catttgcgaa gcaggagaaa acgataaacga agagccttat 480  
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gttccgcact tcaaaggata tgcagagcga gaaatgtaaat tccatcttag gctacgtaac 720  
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aggctggta cgatcgtga cgcataatgag ggcgttcgt atttcacaga gtattccgct 840  
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gataatttac aggatgcaaa tcagatccaa ctgtatcatg ggcgcctta tatttttaca 960  
tttggggatg tggacaaaaca caatcagca tga 993

<210> 11  
<211> 708  
<212> DNA  
<213> *Citrobacter rodentium*

<400> 11  
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aacaaccaac aactctgtttt ccacgggact gacccaaaaa tctaccagca tcttgaagct 180  
gccctcgata agatcaatc cacagacact ggacgtactc ttttgaactg tattgaatta 240  
acatcccgac tcaaattcaga aaaactggca atacatctcg attctgtga gtttaggggt 300  
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actgttgggt tgggtgcttt ttctgaagaa gttctttcag aaaataaatt tctgtgaagag 600  
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<210> 12  
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<212> DNA  
<213> *Enteropathogenic E. coli*

<400> 12  
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caacttcgtt tccaggggac tgatcataat atatatcagc agattgaagc agcactcgat 180  
aagattggctt ctacagagac agggcgtgtt ctccgtatg ctattgaatc aatatcccg 240  
cttaaatcag aaacagtggt aatacacccctc aactcttcca gactaggagt tatggcacat 300  
agagatataag atgctgagaa ccatcgaaaaa actgggtccg attttcaactg taatctgaat 360  
gcagttgaat atccctgtgg ggaggggatt agcgtgggtt actttcatgc gactattgtt 420  
tttcatgagt tgctccatgt ttccacaat taaatgggg agcgtttgaa agttgagagt 480  
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ctgggattcc aacaggtaa actgcattca ttgttttag 699

<210> 13  
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<212> DNA  
<213> *Enterohemorrhagic E. coli*

<400> 13

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caacttcgtt	tccaggggac	tgatcataat	atatatcagc	agattgaagc	agcactcgat	180
aagattggct	ctacagagac	agggcgtgta	ctcctgaatg	ctattgaatc	aatatcccga	240
cttaaatca	aaacagtgg	aatacaccc	aactcttcca	gactaggagt	tatggcacat	300
agagatata	atgctgagaa	ccatcggggg	actgggtccg	attttca	taatctgaat	360
gcagttgaat	atcccgtg	ggaggggatt	agcgtgtgg	actttcatgc	gactattgtt	420
ttccatgagt	tgctccatgt	tttccacaat	ttaaatgggg	agcggttgaa	agttgagagt	480
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ccccgtagaa	cctccatccc	gcrcgactca	gctcttattc	atgatgacaa	tacagtgagt	660
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<210> 14

<211> 506

<212> DNA

<213> *Citrobacter rodentium*

<400> 14

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caagcaatgt	attctgtatg	tccggaagag	tttaaaccta	tttccagaaa	cgaagctagt	180
acaccggaag	gcagctggct	aacagttata	tccggaaac	gcccaatggg	acagtttct	240
gtagatagct	tatatacatcc	tgacttacat	gcattgtgt	agcttcgg	tatgtgtgc	300
aagatcttcc	ctaaagaaaa	caatgattt	ttgtatata	tgattgtgt	cagaatgac	360
agccctctgg	gagaacaacg	agcaaatcga	tttata	tatataat	aaaaagagac	420
atcatgcagg	aattaaatta	tgaatctcca	gagttaaagg	ctgtgaaatc	tgaaatgatt	480
attgcacgtg	aaatgggaga	aatctt				506

<210> 15

<211> 466

<212> DNA

<213> *Citrobacter rodentium*

<400> 15

caatgtat	ataatatctgg	cgtaactaga	ggagtagctg	aactaaaaca	60	
ggaaggatt	attaacgaga	aagccaggcg	acttgctt	atgcaagcaa	tgtattctgt	120
atgtccggaa	gagttaaac	ctattccag	aaacgaagct	agtacaccgg	aaggcagctg	180
gctaacagtt	atatccgaa	aacgccaat	ggcacagtt	tctgtagata	gcttatata	240
tcctgactt	catgcattgt	gtgagcttcc	ggatattgt	tgcaagatct	tccctaaaga	300
aaacaatgat	tttttgtata	tagtattgt	gtacagaaat	gacagccctc	tggagaaca	360
acgagcaaat	cgattatag	aattataaa	tataaaaaga	gacatcatgc	aggaattaaa	420
ttatgaatct	ccagagttaa	aggctgtgaa	atctgaaatg	attatt		466

<210> 16

<211> 675

<212> DNA

<213> *Enteropathogenic E. coli*

<400> 16

atgattaatc	ctgttactaa	tactcagggc	gtgtccccta	taaataactaa	atatgctgaa	60
catgtggta	aaaatattta	cccgaaaatt	aaacatgatt	actttaatga	atcacccaa	120
atatatgata	agaagtata	atccgtata	accagaggag	tagctgaact	aaaacaggaa	180
gaatttggta	acgagaaagc	cagacggtt	tcttatata	agactatgt	ttctgtatgt	240
ccagaagcgt	ttgaacctat	ttccagaaat	gaagccgta	caccggagg	aagctggcta	300
acagttata	ccggaaaacg	cccaatgggg	cagtttctg	tagatagtt	atacaatcc	360
gatttacatg	cattatgt	gcttccggac	atttggta	agatctccc	taaagaaaat	420
aatgattttt	tatacatagt	tggtgtgtac	agaaatgaca	gccctctagg	agaacaacgg	480
gcaaata	ttatagaatt	atataatata	aaaagagata	tcatgcagga	attaaattat	540

gagttaccag agttaaaggc agtaaaatct gaaatgatta tcgcacgtga aatggggagaa	600
atcttagct acatgcctgg ggaaatagac agttatatga aatacataaa taataaactt	660
tctaaaattt agtag	675

<210> 17  
<211> 675  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 17	
atgattaatc ctgttactaa tactcagggc gtgtccctta taaatactaa atatgctgaa	60
catgtggta aaaatattt cccggaaatt aaacatgatt actttaatga atcaccataat	120
atatatgata agaagtataat atccggatata accagaggag tagctgaact aaaacaggaa	180
gaatttgtta acgagaaagc cagacggttt tcttatatga agactatgta ttctgtatgt	240
ccagaagcgt ttgaacctat ttccagaaat gaagccagta caccggagg aagctggcta	300
acagttataat ccggaaaacg cccaatgggg cagtttctg tagatagttt atacaatcct	360
gatttacatg cattatgtga gttccggac atttggta agatctccc taaaagaaaat	420
aatgattttt tatacatatg ttttggta agaaatgaca gccctctagg agaacaacgg	480
gcaaataatgat ttatagaatt atataatata aaaagagata tcattcagga attaaattat	540
gagttaccag agttaaaggc agtaaaatct gaaatgatta tcgcacgtga aatggggagaa	600
atcttagct acatgcctgg ggaaatagac agttatatga aatacataaa taataaactt	660
tctaaaattt agtag	675

<210> 18  
<211> 570  
<212> DNA  
<213> Citrobacter rodentium

<400> 18	
atgttaccaa caagtggttc ttccagcaat ctttactcat ggatgtatata ttcaggaaaa	60
gagaatcctt cgactccgga atcagtaatg gaacttaatc ataatcattt tctttctcct	120
gaatttacagg agaaaactgga ttttatgttc gccatataattt catgtgccag aaacaatgat	180
gagcgtgaga atatttaccc ggagcttaagg gattttgtaa gtatcctaat ggataagaga	240
aacaatgtgt ttgaggtgtat aaatgaagat actgtatgagg tgaccggagc tctgagagcg	300
ggaatgacga tagaggacag ggatgttat atcagggatc tttttttct gcattcattt	360
aaagtaaaaaa ttgagggaaag cagacaagat aaagaggatt ggaaatgtaa agtttatgat	420
ctgctatgttc cgcatcattt ttccagacta tatggggatc tacggcaat caaatgcctc	480
gttgaaggat gcagtgtatga ttatgtatc tttgatatact ttaaggtgcc ggatcttact	540
tacaacaaag gatctttaca atgtggatga	570

<210> 19  
<211> 519  
<212> DNA  
<213> Citrobacter rodentium

<400> 19	
acaaatctt tactcatgga ttttatatctc agggaaaagag aatccttcga ctccggaaatc	60
atgttgcata cttatcata atcattttct ttcttcgtaa ttacaggaga aactggatgt	120
tatgttcgtcc atatattcat gtgcggaaa caatgtatgatc cgtgagaata tttaccggaa	180
gtctaggat tttgtatgtt gcctaatgga taagagaaac aatgttttg aggtgataaa	240
tgaagataact gatgggtgtt ccggagctt gagagcggga atgacgatag aggacaggaa	300
tagttatatc agggatctt ttttctgtca ttcatgtaaa gtaaaaattt agggaaagcag	360
acaagataaa gaggattgga aatgtaaatg ttatgtatctg ctatgtccgc atcattctt	420
agagctataat ggggatctac gggcaatcaa atgcctcgat	480
tagtccctttt gatacttta aggtggcgat tcttacttta	519

<210> 20  
<211> 570  
<212> DNA  
<213> Enteropathogenic E. coli

<400> 20	atgttaccaa	caagtggttc	ttcagcaa	at	ctttattcat	ggatgtatgt	atcaggaaga	60
	ggtaaccctt	cgactccgga	atcagta	agt	gagcttaatc	ataatcactt	tctttctcct	120
	gaattacaag	ataaaacttga	tgttatggc	tctatatatt	catgtgccag	aaataataat		180
	gagcttggagg	aaatttttca	agagcta	aga	gttttgtaa	gtgggctgat	ggataagaga	240
	aatagtgtat	ttgaggtgag	aaatgaaa	aat	actgatgagg	ttgtcggagc	gctgagggcg	300
	ggaatgacga	tagaggatag	ggata	gtt	atcagggatc	tttttttct	gcattcattg	360
	aaagtaaaaa	ttgaggaaag	tagacaaggc	aaaga	agatt	cgaaatgtaa	agtttataat	420
	ctgctatgtc	cgcatcactc	ttcagagcta	tatgg	tgatc	tacgagcaat	gaaatgcctc	480
	gtggaggat	gcagtgtatga	tttaatcct	tttgatatta	tttagggtacc	agatcttact		540
	tacaacaaag	gatctttaca	atgtggatga					570

<210> 21  
<211> 570  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 21								
atgttaccaa	caagtggttc	ttcagcaa	at	ctttattc	at	ggatgtatgt	atcaggaaga	60
ggtaaccctt	cgactccgga	atcaga	agt	gagctt	aa	ataatcactt	tctttctcct	120
gaattacaag	ataaaacttga	tgttatgg	tc	tctatata	tatt	catgtgccag	aaataataat	180
gagcttggagg	aaattttca	agagcta	agt	gctttgt	aa	gtgggctgat	ggataaagaga	240
aatagtgtat	ttgaggtgag	aaatgaaa	at	actgatg	agg	ttgtcggagc	gctgaggggcg	300
ggaatgacga	tagaggacag	ggata	gtt	atcagggatc	tc	tttttttct	gcattcattg	360
aaagtaaaaa	ttgagggaaag	tagaca	aggc	aaaga	agatt	cgaatgtaa	agtttataat	420
ctgctatgtc	cgcatcactc	ttcagag	cta	tatgg	tgatc	tacgagcaat	gaaatgcctc	480
gtggaaaggat	gcagtgtatga	ttttaat	cct	ttt	tgatatta	ttagggtacc	agatcttact	540
tacaacaaag	gatctttaca	atgt	ggatga					570

<210> 22  
<211> 430  
<212> PRT  
<213> *Citrobacter rodentium*

<400> 22

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Met Asn Ile Gln Pro Asn Ile His Ser Gly Ile Thr Thr Gln Asn Asn
1 5 10 15

Gln Gln His His His Ala Glu Gln Val Pro Val Ser Ser Ser Ile Pro
20 25 30

Arg Ser Asp Leu Pro Pro Asn Cys Glu Ala Gly Phe Val Val His Ile
35 40 45

Pro Glu Asp Ile Gln Gln His Val Pro Glu Cys Gly Glu Thr Thr Ala
50 55 60

Leu Leu Ser Leu Ile Lys Asp Glu Gly Leu Leu Ser Gly Leu Asp Lys
65 70 75 80

Tyr Leu Ala Pro His Leu Glu Glu Gly Ser Leu Gly Lys Lys Ala Leu
85 90 95

Asp Thr Phe Gly Leu Phe Asn Val Thr Gln Met Ala Leu Glu Ile Pro
100 105 110

Ser Ser Val Pro Gly Ile Ser Gly Lys Tyr Gly Val Gln Met Asn Ile
115 120 125

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Val Lys Pro Asp Ile His Pro Thr Thr Gly Asn Tyr Phe Leu Gln Leu  
 130 135 140

Phe Pro Leu His Asp Glu Ile Gly Phe Asn Phe Lys Asp Leu Pro Gly  
 145 150 155 160

Pro Leu Lys Asn Ala Leu Thr Asn Ser Ser Ile Ser Ala Thr Ala Ser  
 165 170 175

Thr Val Ala Pro Thr Pro Asn Asp Pro Met Pro Trp Phe Gly Leu Thr  
 180 185 190

Ala Gln Val Val Arg Asn His Gly Val Glu Leu Pro Ile Val Lys Thr  
 195 200 205

Glu Asn Gly Trp Lys Leu Val Gly Glu Thr Pro Leu Thr Pro Asp Gly  
 210 215 220

Pro Lys Ala Asn Tyr Thr Glu Glu Trp Val Ile Arg Pro Gly Glu Ala  
 225 230 235 240

Asp Phe Lys Tyr Gly Thr Ser Pro Leu Gln Ala Thr Leu Gly Leu Glu  
 245 250 255

Phe Gly Ala His Phe Lys Trp Asp Leu Asp Asn Pro Asn Thr Lys Tyr  
 260 265 270

Ala Ile Leu Thr Asn Ala Ala Ala Asn Ala Ile Gly Ala Ala Gly Gly  
 275 280 285

Phe Ala Val Ser Lys Val Pro Gly Ile Asp Pro Met Leu Ser Pro His  
 290 295 300

Val Gly Ala Met Leu Gly Gln Ala Ala Gly His Ala Val Gln Cys Asn  
 305 310 315 320

Thr Pro Gly Leu Lys Pro Asp Thr Ile Leu Trp Trp Ala Gly Ala Thr  
 325 330 335

Phe Gly Ala Ala Asp Leu Asn Lys Ala Glu Phe Asp Lys Val Arg Phe  
 340 345 350

Thr Asp Tyr Pro Arg Ile Trp Phe His Ala Arg Glu Gly Ala Leu Phe  
 355 360 365

Pro Asn Lys Gln Asp Ile Ala Arg Val Thr Gly Ala Asp Ile Lys Ala  
 370 375 380

Met Glu Glu Gly Val Pro Val Gly His Gln His Pro Lys Pro Glu Asp  
 385 390 395 400

Val Val Ile Asp Ile Glu Gly Asn Ser Pro His His Asn Pro Ser  
 405 410 415

Asn Tyr Val Asp Thr Phe Glu Ile Ile Gln Glu Thr Arg Val  
 420 425 430

&lt;210&gt; 23

&lt;211&gt; 440

&lt;212&gt; PRT

&lt;213&gt; Enteropathogenic E. coli

&lt;400&gt; 23

Met	Asn	Ile	Gln	Pro	Ile	Val	Thr	Ser	Gly	Ile	Thr	Thr	Gln	Asn	Asn
1				5				10					15		
Arg	His	His	His	Ala	Glu	Gln	Thr	Ser	Pro	Thr	Gln	Ile	Pro	Gln	Ser
				20			25					30			
Glu	Leu	Pro	Asn	Gly	Cys	Glu	Thr	Gly	Phe	Val	Val	His	Ile	Pro	Glu
				35			40					45			
Asp	Met	Gln	Arg	His	Ala	Pro	Glu	Cys	Gly	Glu	Thr	Thr	Ala	Leu	Leu
				50			55					60			
Ser	Leu	Ile	Lys	Asp	Glu	Gly	Leu	Leu	Ser	Gly	Leu	Asp	Lys	Tyr	Leu
				65			70			75		80			
Ala	Pro	His	Leu	Glu	Glu	Gly	Ser	Ala	Gly	Lys	Lys	Ala	Leu	Asp	Met
				85			90			95					
Phe	Gly	Leu	Phe	Asn	Val	Ser	Gln	Met	Ala	Leu	Glu	Ile	Pro	Ser	Thr
				100			105					110			
Val	Pro	Gly	Ile	Ser	Gly	Lys	Tyr	Gly	Val	Gln	Leu	Asn	Ile	Val	Lys
				115			120				125				
Pro	Asp	Ile	His	Pro	Thr	Ser	Gly	Asn	Tyr	Phe	Leu	Gln	Ile	Phe	Pro
				130			135				140				
Leu	His	Asp	Glu	Ile	Gly	Ile	Asn	Phe	Lys	Asp	Leu	Pro	Gly	Pro	Leu
				145			150			155		160			
Lys	Asn	Ala	Leu	Ser	Asn	Ser	Asn	Ile	Pro	Thr	Thr	Val	Ser	Thr	Ala
				165			170			175					
Ala	Ser	Thr	Ile	Ala	Ser	Ala	Thr	Thr	Ser	Thr	Val	Thr	Thr	Ala	Ser
				180			185			190					
Lys	Asp	Pro	Ile	Pro	Trp	Phe	Gly	Leu	Thr	Ala	Gln	Val	Val	Arg	Asn
				195			200				205				
His	Gly	Val	Glu	Leu	Pro	Ile	Val	Lys	Thr	Glu	Asn	Gly	Trp	Lys	Leu
				210			215			220					
Val	Gly	Glu	Thr	Pro	Leu	Thr	Pro	Asp	Gly	Pro	Lys	Ala	Asn	Tyr	Thr
				225			230			235			240		
Glu	Glu	Trp	Val	Ile	Arg	Pro	Gly	Glu	Ala	Asp	Phe	Lys	Tyr	Gly	Ala
				245			250					255			
Ser	Pro	Leu	Gln	Ala	Thr	Leu	Gly	Leu	Glu	Phe	Gly	Ala	His	Phe	Lys
				260			265					270			
Trp	Asp	Leu	Asp	Asn	Pro	Asn	Thr	Lys	Tyr	Ala	Val	Leu	Thr	Asn	Ala
				275			280				285				
Ala	Ala	Asn	Ala	Leu	Gly	Ala	Val	Gly	Gly	Phe	Ala	Val	Ser	Arg	Phe
				290			295				300				

Thr Gly Thr Asp Pro Met Leu Ser Pro His Ile Gly Ala Met Val Gly  
 305 310 315 320

Gln Ala Ala Gly His Ala Ile Gln Tyr Asn Thr Pro Gly Leu Lys Pro  
 325 330 335

Asp Thr Ile Leu Trp Trp Ala Gly Thr Thr Leu Gly Leu Ala Asp Leu  
 340 345 350

Asn Lys Ala Glu Phé Gly Glu Ala Arg Phe Thr Asp Tyr Pro Arg Ile  
 355 360 365

Trp Trp His Ala Arg Glu Gly Ala Ile Phe Pro Asn Lys Ala Asp Ile  
 370 375 380

Glu His Ala Thr Gly Ala Asp Ile Arg Ala Met Glu Glu Gly Val Ser  
 385 390 395 400

Val Gly Gln Arg His Pro Asn Pro Glu Asp Val Val Ile Asn Ile Glu  
 405 410 415

Ser Asn Asn Ser Pro His His Asn Pro Ser Asn Tyr Val Asp Thr Val  
 420 425 430

Asp Ile Ile Gln Glu Thr Arg Val  
 435 440

<210> 24  
 <211> 441  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<400> 24

Met Asn Ile Gln Pro Thr Ile Gln Ser Gly Ile Thr Ser Gln Asn Asn  
 1 5 10 15

Gln His His Gln Thr Glu Gln Ile Pro Ser Thr Gln Ile Pro Gln Ser  
 20 25 30

Glu Leu Pro Leu Gly Cys Gln Ala Gly Phe Val Val Asn Ile Pro Asp  
 35 40 45

Asp Ile Gln Gln His Ala Pro Glu Cys Gly Glu Thr Thr Ala Leu Leu  
 50 55 60

Ser Leu Ile Lys Asp Lys Gly Leu Leu Ser Gly Leu Asp Glu Tyr Ile  
 65 70 75 80

Ala Pro His Leu Glu Glu Gly Ser Ile Gly Lys Lys Thr Leu Asp Met  
 85 90 95

Phe Gly Leu Phe Asn Val Thr Gln Met Ala Leu Glu Ile Pro Ser Ser  
 100 105 110

Val Ser Gly Ile Ser Gly Lys Tyr Gly Val Gln Leu Asn Ile Val Lys  
 115 120 125

Pro Asp Ile His Pro Thr Ser Gly Asn Tyr Phe Leu Gln Ile Phe Pro  
 130 135 140

Leu His Asp Glu Ile Gly Phe Asn Phe Lys Asp Leu Pro Gly Pro Leu  
 145 150 155 160

Lys Asn Ala Leu Ser Asn Ser Asn Ile Ser Thr Thr Ala Val Ser Thr  
 165 170 175

Ile Ala Ser Thr Gly Thr Ser Ala Thr Thr Ser Thr Val Thr Thr Glu  
 180 185 190

Pro Lys Asp Pro Ile Pro Trp Phe Gly Leu Thr Ala Gln Val Val Arg  
 195 200 205

Asn His Gly Val Glu Leu Pro Ile Val Lys Thr Glu Asn Gly Trp Lys  
 210 215 220

Leu Val Gly Glu Thr Pro Leu Thr Pro Asp Gly Pro Lys Ala Asn Tyr  
 225 230 235 240

Thr Glu Glu Trp Val Ile Arg Pro Gly Glu Ala Asp Phe Lys Tyr Gly  
 245 250 255

Ala Ser Pro Leu Gln Ala Thr Leu Gly Leu Glu Phe Gly Ala His Phe  
 260 265 270

Lys Trp Asp Leu Asp Asn Pro Asn Thr Lys Tyr Ala Val Leu Thr Asn  
 275 280 285

Ala Ala Ala Asn Ala Leu Gly Ala Leu Gly Gly Phe Ala Val Ser Arg  
 290 295 300

Phe Ala Ser Thr Asp Pro Met Leu Ser Pro His Ile Gly Ala Met Val  
 305 310 315 320

Gly Gln Ala Ala Gly His Ala Ile Gln Tyr Asn Thr Pro Gly Leu Lys  
 325 330 335

Pro Asp Thr Ile Leu Trp Trp Ala Gly Ala Thr Leu Gly Ala Ala Asp  
 340 345 350

Leu Asn Lys Ala Glu Phe Glu Val Ala Arg Phe Thr Asp Tyr Pro Arg  
 355 360 365

Ile Trp Trp His Ala Arg Glu Gly Ala Ile Phe Pro Asn Lys Ala Asp  
 370 375 380

Ile Glu His Ala Thr Gly Ala Asp Ile Arg Ala Met Glu Glu Gly Ile  
 385 390 395 400

Pro Val Gly Gln Arg His Pro Asn Pro Glu Asp Val Val Ile Asp Ile  
 405 410 415

Glu Ser Asn Gly Leu Pro His His Asn Pro Ser Asn His Val Asp Ile  
 420 425 430

Phe Asp Ile Ile Gln Glu Thr Arg Val  
 435 440

<210> 25  
 <211> 204  
 <212> PRT  
 <213> *Citrobacter rodentium*

<400> 25

Ile Leu Phe Gln Trp Phe Glu Ala Arg Pro Glu Arg Tyr Gly Lys Gly  
1 5 10 15

Glu Val Pro Ile Leu Asn Thr Lys Glu His Pro Tyr Leu Ser Asn Ile  
20 25 30

Ile Asn Ala Ala Lys Ile Glu Asn Glu Arg Val Ile Gly Val Leu Val  
35 40 45

Asp Gly Asp Phe Thr Tyr Glu Gln Arg Lys Glu Phe Leu Ser Leu Glu  
50 55 60

Asp Glu His Gln Asn Ile Lys Ile Tyr Arg Glu Asn Val Asp Phe  
65 70 75 80

Ser Met Tyr Asp Lys Lys Leu Ser Asp Ile Tyr Leu Glu Asn Ile His  
85 90 95

Glu Gln Glu Ser Tyr Pro Ala Ser Glu Arg Asp Asn Tyr Leu Leu Gly  
100 105 110

Leu Leu Arg Glu Glu Leu Lys Asn Ile Pro Tyr Gly Lys Asp Ser Leu  
115 120 125

Ile Glu Ser Tyr Ala Glu Lys Arg Gly His Thr Trp Phe Asp Phe Phe  
130 135 140

Arg Asn Leu Ala Val Leu Lys Gly Gly Leu Phe Thr Glu Thr Gly  
145 150 155 160

Lys Thr Gly Cys His Asn Ile Ser Pro Cys Gly Gly Cys Ile Tyr Leu  
165 170 175

Asp Ala Asp Met Ile Ile Thr Asp Lys Leu Gly Val Leu Tyr Ala Pro  
180 185 190

Asp Gly Ile Ala Val His Val Asp Cys Asn Asp Glu  
195 200

<210> 26

<211> 186

<212> PRT

<213> *Citrobacter rodentium*

<400> 26

Arg Pro Glu Arg Tyr Gly Lys Glu Val Pro Ile Leu Asn Thr Lys  
1 5 10 15

Glu His Pro Tyr Leu Ser Asn Ile Ile Asn Ala Ala Lys Ile Glu Asn  
20 25 30

Glu Arg Val Ile Gly Val Leu Val Asp Gly Asp Phe Thr Tyr Glu Gln  
35 40 45

Arg Lys Glu Phe Leu Ser Leu Glu Asp Glu His Gln Asn Ile Lys Ile  
50 55 60

Ile Tyr Arg Glu Asn Val Asp Phe Ser Met Tyr Asp Lys Lys Leu Ser  
 65 70 75 80

Asp Ile Tyr Leu Glu Asn Ile His Glu Gln Glu Ser Tyr Pro Ala Ser  
 85 90 95

Glu Arg Asp Asn Tyr Leu Leu Gly Leu Leu Arg Glu Glu Leu Lys Asn  
 100 105 110

Ile Pro Tyr Gly Lys Asp Ser Leu Ile Glu Ser Tyr Ala Glu Lys Arg  
 115 120 125

Gly His Thr Trp Phe Asp Phe Phe Arg Asn Leu Ala Val Leu Lys Gly  
 130 135 140

Gly Gly Leu Phe Thr Glu Thr Gly Lys Thr Gly Cys His Asn Ile Ser  
 145 150 155 160

Pro Cys Gly Gly Cys Ile Tyr Leu Asp Ala Asp Met Ile Ile Thr Asp  
 165 170 175

Lys Leu Gly Val Leu Tyr Ala Pro Asp Gly  
 180 185

<210> 27  
 <211> 329  
 <212> PRT  
 <213> Enteropathogenic E. coli

<400> 27

Met Leu Ser Ser Leu Asn Val Leu Gln Ser Ser Phe Arg Gly Lys Thr  
 1 5 10 15

Ala Leu Ser Asn Ser Thr Leu Leu Gln Lys Val Ser Phe Ala Gly Lys  
 20 25 30

Glu Tyr Ser Leu Glu Pro Ile Asp Glu Arg Thr Pro Ile Leu Phe Gln  
 35 40 45

Trp Phe Glu Ala Arg Pro Glu Arg Tyr Glu Lys Gly Glu Val Pro Ile  
 50 55 60

Leu Asn Thr Lys Glu His Pro Tyr Leu Ser Asn Ile Ile Asn Ala Ala  
 65 70 75 80

Lys Ile Glu Asn Glu Arg Ile Ile Gly Val Leu Val Asp Gly Asn Phe  
 85 90 95

Thr Tyr Glu Gln Lys Lys Glu Phe Leu Asn Leu Glu Asn Glu His Gln  
 100 105 110

Asn Ile Lys Ile Ile Tyr Arg Ala Asp Val Asp Phe Ser Met Tyr Asp  
 115 120 125

Lys Lys Leu Ser Asp Ile Tyr Leu Glu Asn Ile His Lys Gln Glu Ser  
 130 135 140

Tyr Pro Ala Ser Glu Arg Asp Asn Tyr Leu Leu Gly Leu Leu Arg Glu  
 145 150 155 160

Glu Leu Lys Asn Ile Pro Glu Gly Lys Asp Ser Leu Ile Glu Ser Tyr  
 165 170 175

Ala Glu Lys Arg Glu His Thr Trp Phe Asp Phe Phe Arg Asn Leu Ala  
 180 185 190

Ile Leu Lys Ala Gly Ser Leu Phe Thr Glu Thr Gly Lys Thr Gly Cys  
 195 200 205

His Asn Ile Ser Pro Cys Ser Gly Cys Ile Tyr Leu Asp Ala Asp Met  
 210 215 220

Ile Ile Thr Asp Lys Leu Gly Val Leu Tyr Ala Pro Asp Gly Ile Ala  
 225 230 235 240

Val His Val Asp Cys Asn Asp Glu Ile Lys Ser Leu Glu Asn Gly Ala  
 245 250 255

Ile Val Val Asn Arg Ser Asn His Pro Ala Leu Leu Ala Gly Leu Asp  
 260 265 270

Ile Met Lys Ser Lys Val Asp Ala His Pro Tyr Tyr Asp Gly Leu Gly  
 275 280 285

Lys Gly Ile Lys Arg His Phe Asn Tyr Ser Ser Leu His Asn Tyr Asn  
 290 295 300

Ala Phe Cys Asp Phe Ile Glu Phe Lys His Glu Asn Ile Ile Pro Asn  
 305 310 315 320

Thr Ser Met Tyr Thr Ser Ser Ser Trp  
 325

<210> 28

<211> 329

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 28

Met Leu Ser Ser Leu Asn Val Leu Gln Ser Ser Phe Arg Gly Lys Thr  
 1 5 10 15

Ala Leu Ser Asn Ser Thr Leu Leu Gln Lys Val Ser Phe Ala Gly Lys  
 20 25 30

Glu Tyr Pro Leu Glu Pro Ile Asp Glu Lys Thr Pro Ile Leu Phe Gln  
 35 40 45

Trp Phe Glu Ala Arg Pro Glu Arg Tyr Glu Lys Gly Glu Val Pro Ile  
 50 55 60

Leu Asn Thr Lys Glu His Pro Tyr Leu Ser Asn Ile Ile Asn Ala Ala  
 65 70 75 80

Lys Ile Glu Asn Glu Arg Ile Ile Gly Val Leu Val Asp Gly Asn Phe  
 85 90 95

Thr Tyr Glu Gln Lys Lys Glu Phe Leu Ser Leu Glu Asn Glu Tyr Gln  
 100 105 110

Asn Ile Lys Ile Ile Tyr Arg Ala Asp Val Asp Phe Ser Met Tyr Asp  
 115 120 125

Lys Lys Leu Ser Asp Ile Tyr Leu Glu Asn Ile His Lys Gln Glu Ser  
 130 135 140

Tyr Pro Ala Ser Glu Arg Asp Asn Tyr Leu Leu Gly Leu Leu Arg Glu  
 145 150 155 160

Glu Leu Lys Asn Ile Pro Glu Gly Lys Asp Ser Leu Ile Glu Ser Tyr  
 165 170 175

Ala Glu Lys Arg Glu His Thr Trp Phe Asp Phe Phe Arg Asn Leu Ala  
 180 185 190

Met Leu Lys Ala Gly Ser Leu Phe Thr Glu Thr Gly Lys Thr Gly Cys  
 195 200 205

His Asn Ile Ser Pro Cys Ser Gly Cys Ile Tyr Leu Asp Ala Asp Met  
 210 215 220

Ile Ile Thr Asp Lys Leu Gly Val Leu Tyr Ala Pro Asp Gly Ile Ala  
 225 230 235 240

Val His Val Asp Cys Asn Asp Glu Ile Lys Ser Leu Glu Asn Gly Ala  
 245 250 255

Ile Val Val Asn Arg Ser Asn His Pro Ala Leu Leu Ala Gly Leu Asp  
 260 265 270

Ile Met Lys Ser Lys Val Asp Ala His Pro Tyr Tyr Asp Gly Leu Gly  
 275 280 285

Lys Gly Ile Lys Arg His Phe Asn Tyr Ser Ser Leu His Asp Tyr Asn  
 290 295 300

Ala Phe Cys Asp Phe Ile Glu Phe Lys His Glu Asn Ile Ile Pro Asn  
 305 310 315 320

Thr Ser Met Tyr Thr Cys Ser Ser Trp  
 325

<210> 29

<211> 326

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 29

Met Leu Ser Pro Ile Arg Thr Thr Phe His Asn Ser Val Asn Ile Val  
 1 5 10 15

Gln Ser Ser Pro Cys Gln Thr Val Ser Phe Ala Gly Lys Glu Tyr Glu  
 20 25 30

Leu Lys Val Ile Asp Glu Lys Thr Pro Ile Leu Phe Gln Trp Phe Glu  
 35 40 45

Pro Asn Pro Glu Arg Tyr Lys Lys Asp Glu Val Pro Ile Val Asn Thr  
 50 55 60

Lys Gln His Pro Tyr Leu Asp Asn Val Thr Asn Ala Ala Arg Ile Glu  
 65 70 75 80

Ser Asp Arg Met Ile Gly Ile Phe Val Asp Gly Asp Phe Ser Val Asn  
 85 90 95

Gln Lys Thr Ala Phe Ser Lys Leu Glu Arg Asp Phe Glu Asn Val Met  
 100 105 110

Ile Ile Tyr Arg Glu Asp Val Asp Phe Ser Met Tyr Asp Arg Lys Leu  
 115 120 125

Ser Asp Ile Tyr His Asp Ile Ile Cys Glu Gln Arg Leu Arg Thr Glu  
 130 135 140

Asp Lys Arg Asp Glu Tyr Leu Leu Asn Leu Leu Glu Lys Glu Leu Arg  
 145 150 155 160

Glu Ile Ser Lys Ala Gln Asp Ser Leu Ile Ser Met Tyr Ala Lys Lys  
 165 170 175

Arg Asn His Ala Trp Phe Asp Phe Phe Arg Asn Leu Ala Leu Leu Lys  
 180 185 190

Ala Gly Glu Ile Phe Arg Cys Thr Tyr Asn Thr Lys Asn His Gly Ile  
 195 200 205

Ser Phe Gly Glu Gly Cys Ile Tyr Leu Asp Met Asp Met Ile Leu Thr  
 210 215 220

Gly Lys Leu Gly Thr Ile Tyr Ala Pro Asp Gly Ile Ser Met His Val  
 225 230 235 240

Asp Arg Arg Asn Asp Ser Val Asn Ile Glu Asn Ser Ala Ile Ile Val  
 245 250 255

Asn Arg Ser Asn His Pro Ala Leu Leu Glu Gly Leu Ser Phe Met His  
 260 265 270

Ser Lys Val Asp Ala His Pro Tyr Tyr Asp Gly Leu Gly Lys Gly Val  
 275 280 285

Lys Lys Tyr Phe Asn Phe Thr Pro Leu His Asn Tyr Asn His Phe Cys  
 290 295 300

Asp Phe Ile Glu Phe Asn His Pro Asn Ile Ile Met Asn Thr Ser Gln  
 305 310 315 320

Tyr Thr Cys Ser Ser Trp  
 325

<210> 30  
 <211> 330  
 <212> PRT  
 <213> *Citrobacter rodentium*

<400> 30  
 Met Lys Ile Pro Ser Leu Gln Pro Ser Phe Asn Phe Phe Ala Pro Ala  
 1 5 10 15

Gly Tyr Ser Ala Ala Val Ala Pro Asn Arg Ser Asp Asn Ala Tyr Ala  
 20 25 30

Asp Tyr Val Leu Asp Ile Gly Lys Arg Ile Pro Leu Ser Ala Glu Asp  
 35 40 45

Leu Gly Asn Leu Tyr Glu Asn Val Ile Arg Ala Val Arg Asp Ser Arg  
 50 55 60

Ser Lys Leu Ile Asp Gln His Thr Val Asp Met Ile Gly Asn Thr Ile  
 65 70 75 80

Leu Asp Ala Leu Ser Arg Ser Gln Thr Phe Arg Asp Ala Val Ser Tyr  
 85 90 95

Gly Ile His Asn Lys Glu Val His Ile Gly Cys Ile Lys Tyr Arg Asn  
 100 105 110

Glu Tyr Glu Leu Asn Gly Glu Ser Pro Val Lys Val Asp Asp Ile Gln  
 115 120 125

Ser Leu Thr Cys Thr Glu Leu Tyr Glu Tyr Asp Val Gly Gln Glu Pro  
 130 135 140

Ile Leu Pro Ile Cys Glu Ala Gly Glu Asn Asp Asn Glu Glu Pro Tyr  
 145 150 155 160

Val Ser Phe Ser Val Ala Pro Asp Thr Asp Ser Tyr Glu Met Pro Ser  
 165 170 175

Trp Gln Glu Gly Leu Ile His Glu Ile Ile His His Val Thr Gly Ala  
 180 185 190

Ser Asp Pro Ser Gly Asp Ser Asn Ile Glu Leu Gly Pro Thr Glu Ile  
 195 200 205

Leu Ala Arg Arg Val Ala Gln Glu Leu Gly Trp Thr Val Pro Asp Phe  
 210 215 220

Ile Gly Tyr Ala Glu Pro Asp Arg Glu Ala His Leu Arg Gly Arg Asn  
 225 230 235 240

Leu Asn Ala Leu Arg Gln Ala Ala Met Arg His Glu Asp Asn Glu Arg  
 245 250 255

Thr Phe Phe Glu Arg Leu Gly Met Ile Ser Asp Arg Tyr Glu Ala Ser  
 260 265 270

Pro Asp Phe Thr Glu Tyr Ser Ala Val Ser Asn Ile Glu Tyr Gly Phe  
 275 280 285

Ile Gln Gln His Asp Phe Pro Gly Leu Ala Ile Asp Asp Asn Leu Gln  
 290 295 300

Asp Ala Asn Gln Ile Gln Leu Tyr His Gly Ala Pro Tyr Ile Phe Thr  
 305 310 315 320

Phe Gly Asp Val Asp Lys His Asn Gln Arg  
 325 330

<210> 31  
 <211> 330  
 <212> PRT  
 <213> Enteropathogenic E. coli

<400> 31

Met Lys Ile Pro Ser Leu Gln Ser Asn Phe Asn Phe Ser Ala Pro Ala  
 1 5 10 15

Gly Tyr Ser Ala Pro Ile Ala Pro Asn Arg Ala Glu Asn Ala Tyr Ala  
 20 25 30

Asp Tyr Val Leu Asp Ile Gly Lys Arg Ile Pro Leu Ser Ala Ala Asp  
 35 40 45

Leu Ser Asn Val Tyr Glu Ser Val Ile Arg Ala Val His Asp Ser Arg  
 50 55 60

Ser Arg Leu Ile Asp Gln His Thr Val Asp Met Ile Gly Asn Thr Val  
 65 70 75 80

Leu Asp Ala Leu Ser Arg Ser Gln Thr Phe Arg Asp Ala Val Ser Tyr  
 85 90 95

Gly Ile His Asn Glu Lys Val His Ile Gly Cys Ile Lys Tyr Arg Asn  
 100 105 110

Glu Tyr Glu Leu Asn Glu Glu Ser Ser Val Lys Ile Asp Asp Ile Gln  
 115 120 125

Ser Leu Thr Cys Asn Glu Leu Tyr Glu Tyr Asp Val Gly Gln Glu Pro  
 130 135 140

Ile Phe Pro Ile Cys Glu Ala Gly Glu Asn Asp Asn Glu Glu Pro Tyr  
 145 150 155 160

Val Ser Phe Ser Val Ala Pro Asp Thr Asp Ser Tyr Glu Met Pro Ser  
 165 170 175

Trp Gln Glu Gly Leu Ile His Glu Ile Ile His His Val Thr Gly Ser  
 180 185 190

Ser Asp Pro Ser Gly Asp Ser Asn Ile Glu Leu Gly Pro Thr Glu Ile  
 195 200 205

Leu Ala Arg Arg Val Ala Gln Glu Leu Gly Trp Ser Val Pro Asp Phe  
 210 215 220

Lys Gly Tyr Ala Glu Pro Glu Arg Glu Ala His Leu Arg Leu Arg Asn  
 225 230 235 240

Leu Asn Ala Leu Arg Gln Ala Ala Met Arg His Glu Glu Asn Glu Arg  
 245 250 255

Ala Phe Phe Glu Arg Leu Gly Thr Ile Ser Asp Arg Tyr Glu Ala Ser  
 260 265 270

Pro Asp Phe Thr Glu Tyr Ser Ala Val Ser Asn Ile Gly Tyr Gly Phe  
 275 280 285

Ile Gln Gln His Asp Phe Pro Gly Leu Ala Ile Asn Asp Asn Leu Gln  
 290 295 300

Asp Ala Asn Gln Ile Gln Leu Tyr His Gly Ala Pro Tyr Ile Phe Thr  
 305 310 315 320

Phe Gly Asp Val Asp Lys His Asn Gln Arg  
 325 330

<210> 32

<211> 330

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 32

Met Lys Ile Pro Ser Leu Gln Ser Asn Phe Asn Phe Ser Ala Pro Ala  
 1 5 10 15

Gly Tyr Ser Ala Pro Ile Ala Pro Asn Arg Ala Glu Asn Ala Tyr Ala  
 20 25 30

Asp Tyr Val Leu Asp Ile Gly Lys Arg Ile Pro Leu Ser Ala Ala Asp  
 35 40 45

Leu Ser Asn Val Tyr Glu Ser Val Ile Arg Ala Val His Asp Ser Arg  
 50 55 60

Ser Arg Leu Ile Asp Gln His Thr Val Asp Met Ile Gly Asn Thr Val  
 65 70 75 80

Leu Asp Ala Leu Ser Arg Ser Gln Thr Phe Arg Asp Ala Val Ser Tyr  
 85 90 95

Gly Ile His Asn Glu Lys Val His Ile Gly Cys Ile Lys Tyr Arg Asn  
 100 105 110

Glu Tyr Glu Leu Asn Glu Glu Ser Ser Val Lys Ile Asp Asp Ile Gln  
 115 120 125

Ser Leu Thr Cys Asn Glu Leu Tyr Glu Tyr Asp Val Gly Gln Glu Pro  
 130 135 140

Ile Phe Pro Ile Cys Glu Ala Gly Glu Asn Asp Asn Glu Glu Pro Tyr  
 145 150 155 160

Val Ser Phe Ser Val Ala Pro Asp Thr Asp Ser Tyr Glu Met Pro Ser  
 165 170 175

Trp Gln Glu Gly Leu Ile His Glu Ile Ile His His Val Thr Gly Ser  
 180 185 190

Ser Asp Pro Ser Gly Asp Ser Asn Ile Glu Leu Gly Pro Thr Glu Ile  
 195 200 205

Leu Ala Arg Arg Val Ala Gln Glu Leu Gly Trp Ser Val Pro Asp Phe  
 210 215 220

Lys Gly Tyr Ala Glu Pro Glu Arg Glu Ala His Leu Arg Leu Arg Asn  
 225 230 235 240

Leu Asn Ala Leu Arg Gln Ala Ala Met Arg His Glu Glu Asn Glu Arg  
 245 250 255  
 Ala Phe Phe Glu Arg Leu Gly Thr Ile Ser Asp Arg Tyr Glu Ala Ser  
 260 265 270  
 Pro Asp Phe Thr Glu Tyr Ser Ala Val Ser Asn Ile Gly Tyr Gly Phe  
 275 280 285  
 Ile Gln Gln His Asp Phe Pro Gly Leu Ala Ile Asn Asp Asn Leu Gln  
 290 295 300  
 Asp Ala Asn Gln Ile Gln Leu Tyr His Gly Ala Pro Tyr Ile Phe Thr  
 305 310 315 320  
 Phe Gly Asp Val Asp Lys His Asn Gln Gln  
 325 330  
 <210> 33  
 <211> 235  
 <212> PRT  
 <213> *Citrobacter rodentium*  
 <400> 33  
 Met Arg Pro Thr Ser Leu Asn Leu Thr Leu Pro Ser Leu Pro Leu Pro  
 1 5 10 15  
 Ser Ser Ser Asn Ser Ile Ser Ala Thr Asp Ile Gln Ser Leu Val Lys  
 20 25 30  
 Met Ser Gly Val Arg Trp Val Lys Asn Asn Gln Gln Leu Cys Phe His  
 35 40 45  
 Gly Thr Asp Leu Lys Ile Tyr Gln His Leu Glu Ala Ala Leu Asp Lys  
 50 55 60  
 Ile Glu Ser Thr Asp Thr Gly Arg Thr Leu Leu Asn Cys Ile Glu Leu  
 65 70 75 80  
 Thr Ser Arg Leu Lys Ser Glu Lys Leu Ala Ile His Leu Asp Ser Ala  
 85 90 95  
 Glu Leu Gly Val Ile Ala His Cys Asn Ala Asp Ala Glu Asn Ser Arg  
 100 105 110  
 Gly Thr Gly Ser Asp Phe His Cys Asn Leu Asn Ala Val Glu Tyr Pro  
 115 120 125  
 Cys Gly Gln Gly Ile Ser Leu Val Asp Phe His Ala Cys Ile Val Phe  
 130 135 140  
 His Glu Leu Leu His Val Phe His Asn Leu Asn Gly Glu Arg Leu Lys  
 145 150 155 160  
 Val Glu Ser Ser Gln Pro Glu Leu Gln Thr His Ser Pro Leu Leu  
 165 170 175  
 Glu Glu Ala Arg Thr Val Gly Leu Gly Ala Phe Ser Glu Glu Val Leu  
 180 185 190

Ser Glu Asn Lys Phe Arg Glu Glu Ile Gly Met Pro Arg Arg Thr Phe  
 195 200 205

Tyr Pro His Asp Ser Ser Leu Ile His Asp Asp Asn Thr Val Thr Gln  
 210 215 220

Arg Phe Gln Arg Lys Lys Leu His Pro Leu Leu  
 225 230 235

<210> 34  
 <211> 232  
 <212> PRT  
 <213> Enteropathogenic E. coli

<400> 34

Met Arg Pro Thr Ser Leu Asn Leu Val Leu His Gln Ser Ser Thr Ser  
 1 5 10 15

Ser Ser Met Ser Asp Thr Asp Ile Glu Ser Leu Val Lys Ala Ser Ser  
 20 25 30

Val Gln Trp Ile Lys Asn Asn Pro Gln Leu Arg Phe Gln Gly Thr Asp  
 35 40 45

His Asn Ile Tyr Gln Gln Ile Glu Ala Ala Leu Asp Lys Ile Gly Ser  
 50 55 60

Thr Glu Thr Gly Arg Val Leu Leu Asn Ala Ile Glu Ser Ile Ser Arg  
 65 70 75 80

Leu Lys Ser Glu Thr Val Val Ile His Leu Asn Ser Ser Arg Leu Gly  
 85 90 95

Val Met Ala His Arg Asp Ile Asp Ala Glu Asn His Arg Gly Thr Gly  
 100 105 110

Ser Asp Phe His Cys Asn Leu Asn Ala Val Glu Tyr Pro Cys Gly Glu  
 115 120 125

Gly Ile Ser Val Val Asp Phe His Ala Thr Ile Val Phe His Glu Leu  
 130 135 140

Leu His Val Phe His Asn Leu Asn Gly Glu Arg Leu Lys Val Glu Ser  
 145 150 155 160

Ser Arg Pro Glu Ser Gln Lys Tyr Ser Pro Leu Leu Leu Glu Glu Ala  
 165 170 175

Arg Thr Val Gly Leu Gly Ala Phe Ser Glu Glu Val Leu Ser Glu Asn  
 180 185 190

Lys Phe Arg Glu Glu Ile Gly Met Pro Arg Arg Thr Ser Tyr Pro His  
 195 200 205

Asp Ser Ala Leu Ile His Asp Asp Asn Thr Val Ser Leu Gly Phe Gln  
 210 215 220

Gln Val Arg Leu His Pro Leu Leu  
 225 230

<210> 35  
 <211> 232  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<220>  
 <221> MISC\_FEATURE  
 <222> (208)..(208)  
 <223> Xaa = Arg or His

<400> 35

Met Arg Pro Thr Ser Leu Asn Leu Val Leu His Gln Ser Ser Arg Ser  
 1 5 10 15

Ser Ser Met Ser Asp Thr Asp Ile Glu Ser Leu Val Lys Ala Ser Ser  
 20 25 30

Val Gln Trp Ile Lys Asn Asn Pro Gln Leu Arg Phe Gln Gly Thr Asp  
 35 40 45

His Asn Ile Tyr Gln Gln Ile Glu Ala Ala Leu Asp Lys Ile Gly Ser  
 50 55 60

Thr Glu Thr Gly Arg Val Leu Leu Asn Ala Ile Glu Ser Ile Ser Arg  
 65 70 75 80

Leu Lys Ser Glu Thr Val Val Ile His Leu Asn Ser Ser Arg Leu Gly  
 85 90 95

Val Met Ala His Arg Asp Ile Asp Ala Glu Asn His Arg Gly Thr Gly  
 100 105 110

Ser Asp Phe His Cys Asn Leu Asn Ala Val Glu Tyr Pro Cys Gly Glu  
 115 120 125

Gly Ile Ser Val Val Asp Phe His Ala Thr Ile Val Phe His Glu Leu  
 130 135 140

Leu His Val Phe His Asn Leu Asn Gly Glu Arg Leu Lys Val Glu Ser  
 145 150 155 160

Ser Arg Ala Glu Ser Gln Lys Tyr Ser Pro Leu Leu Leu Glu Ala  
 165 170 175

Arg Thr Val Gly Leu Gly Ala Phe Ser Glu Glu Val Leu Ser Glu Asn  
 180 185 190

Lys Phe His Glu Glu Ile Gly Met Pro Arg Arg Thr Ser Tyr Pro Xaa  
 195 200 205

Asp Ser Ala Leu Ile His Asp Asp Asn Thr Val Ser Leu Gly Phe Gln  
 210 215 220

Gln Val Arg Leu His Pro Leu Leu  
 225 230

<210> 36  
 <211> 168  
 <212> PRT  
 <213> Citrobacter rodentium

<400> 36

Tyr Phe Asn Glu Ser Pro Asn Val Tyr Asp Lys Lys Tyr Ile Ser Gly  
1 5 10 15

Val Thr Arg Gly Val Ala Glu Leu Lys Gln Glu Gly Phe Ile Asn Glu  
20 25 30

Lys Ala Arg Arg Leu Ala Tyr Met Gln Ala Met Tyr Ser Val Cys Pro  
35 40 45

Glu Glu Phe Lys Pro Ile Ser Arg Asn Glu Ala Ser Thr Pro Glu Gly  
50 55 60

Ser Trp Leu Thr Val Ile Ser Gly Lys Arg Pro Met Gly Gln Phe Ser  
65 70 75 80

Val Asp Ser Leu Tyr His Pro Asp Leu His Ala Leu Cys Glu Leu Pro  
85 90 95

Asp Ile Cys Cys Lys Ile Phe Pro Lys Glu Asn Asn Asp Phe Leu Tyr  
100 105 110

Ile Val Ile Val Tyr Arg Asn Asp Ser Pro Leu Gly Glu Gln Arg Ala  
115 120 125

Asn Arg Phe Ile Glu Leu Tyr Asn Ile Lys Arg Asp Ile Met Gln Glu  
130 135 140

Leu Asn Tyr Glu Ser Pro Glu Leu Lys Ala Val Lys Ser Glu Met Ile.  
145 150 155 160

Ile Ala Arg Glu Met Gly Glu Ile  
165

<210> 37

<211> 154

<212> PRT

<213> *Citrobacter rodentium*

<400> 37

Asn Val Tyr Asp Lys Lys Tyr Ile Ser Gly Val Thr Arg Gly Val Ala  
1 5 10 15

Glu Leu Lys Gln Glu Gly Phe Ile Asn Glu Lys Ala Arg Arg Leu Ala  
20 25 30

Tyr Met Gln Ala Met Tyr Ser Val Cys Pro Glu Glu Phe Lys Pro Ile  
35 40 45

Ser Arg Asn Glu Ala Ser Thr Pro Glu Gly Ser Trp Leu Thr Val Ile  
50 55 60

Ser Gly Lys Arg Pro Met Gly Gln Phe Ser Val Asp Ser Leu Tyr His  
65 70 75 80

Pro Asp Leu His Ala Leu Cys Glu Leu Pro Asp Ile Cys Cys Lys Ile  
85 90 95

Phe Pro Lys Glu Asn Asn Asp Phe Leu Tyr Ile Val Ile Val Tyr Arg  
 100 105 110

Asn Asp Ser Pro Leu Gly Glu Gln Arg Ala Asn Arg Phe Ile Glu Leu  
 115 120 125

Tyr Asn Ile Lys Arg Asp Ile Met Gln Glu Leu Asn Tyr Glu Ser Pro  
 130 135 140

Glu Leu Lys Ala Val Lys Ser Glu Met Ile  
 145 150

<210> 38

<211> 224

<212> PRT

<213> Enteropathogenic E. coli

<400> 38

Met Ile Asn Pro Val Thr Asn Thr Gln Gly Val Ser Pro Ile Asn Thr  
 1 5 10 15

Lys Tyr Ala Glu His Val Val Lys Asn Ile Tyr Pro Lys Ile Lys His  
 20 25 30

Asp Tyr Phe Asn Glu Ser Pro Asn Ile Tyr Asp Lys Lys Tyr Ile Ser  
 35 40 45

Gly Ile Thr Arg Gly Val Ala Glu Leu Lys Gln Glu Glu Phe Val Asn  
 50 55 60

Glu Lys Ala Arg Arg Phe Ser Tyr Met Lys Thr Met Tyr Ser Val Cys  
 65 70 75 80

Pro Glu Ala Phe Glu Pro Ile Ser Arg Asn Glu Ala Ser Thr Pro Glu  
 85 90 95

Gly Ser Trp Leu Thr Val Ile Ser Gly Lys Arg Pro Met Gly Gln Phe  
 100 105 110

Ser Val Asp Ser Leu Tyr Asn Pro Asp Leu His Ala Leu Cys Glu Leu  
 115 120 125

Pro Asp Ile Cys Cys Lys Ile Phe Pro Lys Glu Asn Asn Asp Phe Leu  
 130 135 140

Tyr Ile Val Val Val Tyr Arg Asn Asp Ser Pro Leu Gly Glu Gln Arg  
 145 150 155 160

Ala Asn Arg Phe Ile Glu Leu Tyr Asn Ile Lys Arg Asp Ile Met Gln  
 165 170 175

Glu Leu Asn Tyr Glu Leu Pro Glu Leu Lys Ala Val Lys Ser Glu Met  
 180 185 190

Ile Ile Ala Arg Glu Met Gly Glu Ile Phe Ser Tyr Met Pro Gly Glu  
 195 200 205

Ile Asp Ser Tyr Met Lys Tyr Ile Asn Asn Lys Leu Ser Lys Ile Glu  
 210 215 220

<210> 39  
 <211> 224  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<400> 39

Met Ile Asn Pro Val Thr Asn Thr Gln Gly Val Ser Pro Ile Asn Thr  
 1 5 10 15

Lys Tyr Ala Glu His Val Val Lys Asn Ile Tyr Pro Glu Ile Lys His  
 20 25 30

Asp Tyr Phe Asn Glu Ser Pro Asn Ile Tyr Asp Lys Lys Tyr Ile Ser  
 35 40 45

Gly Ile Thr Arg Gly Val Ala Glu Leu Lys Gln Glu Glu Phe Val Asn  
 50 55 60

Glu Lys Ala Arg Arg Phe Ser Tyr Met Lys Thr Met Tyr Ser Val Cys  
 65 70 75 80

Pro Glu Ala Phe Glu Pro Ile Ser Arg Asn Glu Ala Ser Thr Pro Glu  
 85 90 95

Gly Ser Trp Leu Thr Val Ile Ser Gly Lys Arg Pro Met Gly Gln Phe  
 100 105 110

Ser Val Asp Ser Leu Tyr Asn Pro Asp Leu His Ala Leu Cys Glu Leu  
 115 120 125

Pro Asp Ile Cys Cys Lys Ile Phe Pro Lys Glu Asn Asn Asp Phe Leu  
 130 135 140

Tyr Ile Val Val Val Tyr Arg Asn Asp Ser Pro Leu Gly Glu Gln Arg  
 145 150 155 160

Ala Asn Arg Phe Ile Glu Leu Tyr Asn Ile Lys Arg Asp Ile Met Gln  
 165 170 175

Glu Leu Asn Tyr Glu Leu Pro Glu Leu Lys Ala Val Lys Ser Glu Met  
 180 185 190

Ile Ile Ala Arg Glu Met Gly Glu Ile Phe Ser Tyr Met Pro Gly Glu  
 195 200 205

Ile Asp Ser Tyr Met Lys Tyr Ile Asn Asn Lys Leu Ser Lys Ile Glu  
 210 215 220

<210> 40  
 <211> 188  
 <212> PRT  
 <213> Citrobacter rodentium

<400> 40

Met Leu Pro Thr Ser Gly Ser Ser Ala Asn Leu Tyr Ser Trp Met Tyr  
 1 5 10 15

Ile Ser Gly Lys Glu Asn Pro Ser Thr Pro Glu Ser Val Ser Glu Leu  
 20 25 30

Asn	His	Asn	His	Phe	Leu	Ser	Pro	Glu	Leu	Gln	Glu	Lys	Leu	Asp	Val
35							40					45			
Met	Phe	Ala	Ile	Tyr	Ser	Cys	Ala	Arg	Asn	Asn	Asp	Glu	Arg	Glu	Asn
50							55					60			
Ile	Tyr	Pro	Glu	Leu	Arg	Asp	Phe	Val	Ser	Ser	Leu	Met	Asp	Lys	Arg
65							70			75			80		
Asn	Asn	Val	Phe	Glu	Val	Ile	Asn	Glu	Asp	Thr	Asp	Glu	Val	Thr	Gly
						85			90				95		
Ala	Leu	Arg	Ala	Gly	Met	Thr	Ile	Glu	Asp	Arg	Asp	Ser	Tyr	Ile	Arg
					100			105					110		
Asp	Leu	Phe	Phe	Leu	His	Ser	Leu	Lys	Val	Lys	Ile	Glu	Glu	Ser	Arg
					115			120				125			
Gln	Asp	Lys	Glu	Asp	Trp	Lys	Cys	Lys	Val	Tyr	Asp	Leu	Leu	Cys	Pro
					130			135			140				
His	His	Ser	Ser	Glu	Leu	Tyr	Gly	Asp	Leu	Arg	Ala	Ile	Lys	Cys	Leu
					145			150			155			160	
Val	Glu	Gly	Cys	Ser	Asp	Asp	Phe	Ser	Pro	Phe	Asp	Thr	Ile	Lys	Val
					165			170			175				
Pro	Asp	Leu	Thr	Tyr	Asn	Lys	Gly	Ser	Leu	Gln	Cys				
					180			185							
<210>	41														
<211>	171														
<212>	PRT														
<213>	Citrobacter rodentium														
<400>	41														
Ala	Asn	Leu	Tyr	Ser	Trp	Met	Tyr	Ile	Ser	Gly	Lys	Glu	Asn	Pro	Ser
1					5				10				15		
Thr	Pro	Glu	Ser	Val	Ser	Glu	Leu	Asn	His	Asn	His	Phe	Leu	Ser	Pro
					20			25			30				
Glu	Leu	Gln	Glu	Lys	Leu	Asp	Val	Met	Phe	Ala	Ile	Tyr	Ser	Cys	Ala
					35			40			45				
Arg	Asn	Asn	Asp	Glu	Arg	Glu	Asn	Ile	Tyr	Pro	Glu	Leu	Arg	Asp	Phe
					50			55			60				
Val	Ser	Ser	Leu	Met	Asp	Lys	Arg	Asn	Asn	Val	Phe	Glu	Val	Ile	Asn
					65			70			75			80	
Glu	Asp	Thr	Asp	Glu	Val	Thr	Gly	Ala	Leu	Arg	Ala	Gly	Met	Thr	Ile
					85			90					95		
Glu	Asp	Arg	Asp	Ser	Tyr	Ile	Arg	Asp	Leu	Phe	Phe	Leu	His	Ser	Leu
					100			105				110			
Lys	Val	Lys	Ile	Glu	Glu	Ser	Arg	Gln	Asp	Lys	Glu	Asp	Trp	Lys	Cys
					115			120			125				

Lys Val Tyr Asp Leu Leu Cys Pro His His Ser Ser Glu Leu Tyr Gly  
 130 135 140

Asp Leu Arg Ala Ile Lys Cys Leu Val Glu Gly Cys Ser Asp Asp Phe  
 145 150 155 160

Ser Pro Phe Asp Thr Ile Lys Val Pro Asp Leu  
 165 170

<210> 42

<211> 189

<212> PRT

<213> Enteropathogenic E. coli

<400> 42

Met Leu Pro Thr Ser Gly Ser Ser Ala Asn Leu Tyr Ser Trp Met Tyr  
 1 5 10 15

Val Ser Gly Arg Gly Asn Pro Ser Thr Pro Glu Ser Val Ser Glu Leu  
 20 25 30

Asn His Asn His Phe Leu Ser Pro Glu Leu Gln Asp Lys Leu Asp Val  
 35 40 45

Met Val Ser Ile Tyr Ser Cys Ala Arg Asn Asn Glu Leu Glu Glu  
 50 55 60

Ile Phe Gln Glu Leu Ser Ala Phe Val Ser Gly Leu Met Asp Lys Arg  
 65 70 75 80

Asn Ser Val Phe Glu Val Arg Asn Glu Asn Thr Asp Glu Val Val Gly  
 85 90 95

Ala Leu Arg Ala Gly Met Thr Ile Glu Asp Arg Asp Ser Tyr Ile Arg  
 100 105 110

Asp Leu Phe Phe Leu His Ser Leu Lys Val Lys Ile Glu Glu Ser Arg  
 115 120 125

Gln Gly Lys Glu Asp Ser Lys Cys Lys Val Tyr Asn Leu Leu Cys Pro  
 130 135 140

His His Ser Ser Glu Leu Tyr Gly Asp Leu Arg Ala Met Lys Cys Leu  
 145 150 155 160

Val Glu Gly Cys Ser Asp Asp Phe Asn Pro Phe Asp Ile Ile Arg Val  
 165 170 175

Pro Asp Leu Thr Tyr Asn Lys Gly Ser Leu Gln Cys Gly  
 180 185

<210> 43

<211> 189

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 43

Met Leu Pro Thr Ser Gly Ser Ser Ala Asn Leu Tyr Ser Trp Met Tyr  
 1 5 10 15

Val Ser Gly Arg Gly Asn Pro Ser Thr Pro Glu Ser Val Ser Glu Leu  
 20 25 30

Asn His Asn His Phe Leu Ser Pro Glu Leu Gln Asp Lys Leu Asp Val  
 35 40 45

Met Val Ser Ile Tyr Ser Cys Ala Arg Asn Asn Asn Glu Leu Glu Glu  
 50 55 60

Ile Phe Gln Glu Leu Ser Ala Phe Val Ser Gly Leu Met Asp Lys Arg  
 65 70 75 80

Asn Ser Val Phe Glu Val Arg Asn Glu Asn Thr Asp Glu Val Val Gly  
 85 90 95

Ala Leu Arg Ala Gly Met Thr Ile Glu Asp Arg Asp Ser Tyr Ile Arg  
 100 105 110

Asp Leu Phe Phe Leu His Ser Leu Lys Val Lys Ile Glu Glu Ser Arg  
 115 120 125

Gln Gly Lys Glu Asp Ser Lys Cys Lys Val Tyr Asn Leu Leu Cys Pro  
 130 135 140

His His Ser Ser Glu Leu Tyr Gly Asp Leu Arg Ala Met Lys Cys Leu  
 145 150 155 160

Val Glu Gly Cys Ser Asp Asp Phe Asn Pro Phe Asp Ile Ile Arg Val  
 165 170 175

Pro Asp Leu Thr Tyr Asn Lys Gly Ser Leu Gln Cys Gly  
 180 185

<210> 44

<211> 40

<212> DNA

<213> Artificial

<220>

<223> primer Z6024F

<400> 44

agatctgaag gagatattat gaacattcaa ccgaccatac

40

<210> 45

<211> 34

<212> DNA

<213> Artificial

<220>

<223> primer Z6024R

<400> 45

ctcgaggact cttgtttctt cgattatatc aaag

34

<210> 46

<211> 28

<212> DNA

<213> Artificial

<220>  
<223> primer NT10

<400> 46  
ccggtaacctc taaccattga cgcaactcg 28

<210> 47  
<211> 29  
<212> DNA  
<213> Artificial

<220>  
<223> primer NT11

<400> 47  
aacctgcaga actaggatc tctaattgcc 29

<210> 48  
<211> 29  
<212> DNA  
<213> Artificial

<220>  
<223> primer NT12

<400> 48  
aacctgcagc tgactatcct cgtatatgg 29

<210> 49  
<211> 27  
<212> DNA  
<213> Artificial

<220>  
<223> primer NT13

<400> 49  
ccgagctcaag gtaatgagac tgtcagc 27

<210> 50  
<211> 22  
<212> DNA  
<213> Artificial

<220>  
<223> primer dellF

<400> 50  
ggtaccacca cacagaataa tc 22

<210> 51  
<211> 26  
<212> DNA  
<213> Artificial

<220>  
<223> primer dellR

<400> 51  
cgcttagccta tatactgctg ttggtt 26

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<210> 52
<211> 28
<212> DNA
<213> Artificial

<220>
<223> primer del2F

<400> 52
gctagctgac aggcaactct tggactgg 28

<210> 53
<211> 29
<212> DNA
<213> Artificial

<220>
<223> primer del2R

<400> 53
gagctcaaca taatttgatg gattatgat 29

<210> 54
<211> 24
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 54
ttccatatga acattcaacc gacc 24

<210> 55
<211> 24
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 55
ggaattcaat aatagctgcc atcc 24

<210> 56
<211> 135
<212> PRT
<213> Salmonella

<400> 56

Met Glu Ser Lys Asn Ser Asp Tyr Val Ile Pro Asp Ser Val Lys Asn
1 5 10 15

Tyr Asn Gly Glu Pro Leu Tyr Ile Leu Val Ser Leu Trp Cys Lys Leu
20 25 30

Gln Glu Lys Trp Ile Ser Arg Asn Asp Ile Ala Glu Ala Phe Gly Ile
35 40 45

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Asn Leu Arg Arg Ala Ser Phe Ile Ile Thr Tyr Ile Ser Arg Arg Lys  
 50 55 60

Glu Lys Ile Ser Phe Arg Val Arg Tyr Val Ser Tyr Gly Asn Leu His  
 65 70 75 80

Tyr Lys Arg Leu Glu Ile Phe Ile Tyr Asn Val Asn Leu Glu Ala Ala  
 85 90 95

Pro Thr Glu Ser His Val Ser Thr Gly Pro Lys Arg Lys Thr Leu Arg  
 100 105 110

Val Gly Asn Gly Ile Val Gly Gln Ser Ser Ile Trp Asn Glu Met Ile  
 115 120 125

Met Arg Arg Lys Lys Glu Ser  
 130 135

<210> 57

<211> 131

<212> PRT

<213> Enterobacteriaceae

<400> 57

Met Cys Glu Gly Tyr Val Glu Lys Pro Leu Tyr Leu Leu Ile Ala Glu  
 1 5 10 15

Trp Met Met Ala Glu Asn Arg Trp Val Ile Ala Arg Glu Ile Ser Ile  
 20 25 30

His Phe Asp Ile Glu His Ser Lys Ala Val Asn Thr Leu Thr Tyr Ile  
 35 40 45

Leu Ser Glu Val Thr Glu Ile Ser Cys Glu Val Lys Met Ile Pro Asn  
 50 55 60

Lys Leu Glu Gly Arg Gly Cys Gln Cys Gln Arg Leu Val Lys Val Val  
 65 70 75 80

Asp Ile Asp Glu Gln Ile Tyr Ala Arg Leu Arg Asn Asn Ser Arg Glu  
 85 90 95

Lys Leu Val Gly Val Arg Lys Thr Pro Arg Ile Pro Ala Val Pro Leu  
 100 105 110

Thr Glu Leu Asn Arg Glu Gln Lys Trp Gln Met Met Leu Ser Lys Ser  
 115 120 125

Met Arg Arg  
 130

<210> 58

<211> 170

<212> PRT

<213> Citrobacter rodentium

<400> 58

Met Cys Pro Asp Asn Thr His Ala Lys Lys Gln Tyr Leu Thr Pro Gly  
 1 5 10 15

Asn Asp Ile His Tyr Pro Gly Gln Thr Asn His Asp Ala Cys Phe Ile  
 20 25 30

Pro Val Ser Val Arg Gln Tyr Ala Gly Glu Pro Leu Tyr Ile Ile Val  
 35 40 45

Ala His Trp Cys Leu Leu Gln Gln Asn Trp Val Gln Arg Asn Gln Ile  
 50 55 60

Ala Glu Ala Phe His Ile Thr Ala Arg Arg Ala Ser Tyr Leu Ile Ala  
 65 70 75 80

Tyr Leu Arg Ser Lys Thr Ser Arg Val Val Ser Ile Cys Arg His Gln  
 85 90 95

Thr Leu Pro Asn Lys Ala Arg Arg Tyr Glu Ile Tyr Val Ile Arg Val  
 100 105 110

Leu Asp Ser Pro Thr Pro Ser Thr Arg Arg Glu Lys Ala Gly Pro Pro  
 115 120 125

Leu Val Ser Lys Arg Arg Val Gly Asn Gly Asp Arg Ser Met Ala Asn  
 130 135 140

Glu Leu Trp Asn Arg Leu Cys Ser Asn Arg Asn Ala Gly Lys Ile Leu  
 145 150 155 160

Lys Lys Lys Glu Asp Glu Asp Asp Gly Thr  
 165 170

<210> 59  
 <211> 12  
 <212> PRT  
 <213> *Citrobacter rodentium*

<220>  
 <221> MISC\_FEATURE  
 <222> (9)..(9)  
 <223> Xaa = Ile or Leu

<400> 59

Gln Gln Glu Asn Ala Pro Ser Ser Xaa Gln Thr Arg  
 1 5 10

<210> 60  
 <211> 981  
 <212> DNA  
 <213> *Enterohemorrhagic E. coli*

<400> 60  
 atgcttcac cgataaggac aactttccat aactcagtaa atatagtgca gagttcaccc  
 tgc当地  
 tttctttgc aggaaaggaa tatgagttaa aggtcattga tgaaaaaaacg  
 cctattctt ttcagtggtt tgaacctaat cctgaacgat ataagaaaaga tgagggttcca  
 atagttata ctaagcagca tccctattta gataatgtca caaatgcggc aaggatagag  
 agtgatcgta tgataggtat ttttggat ggcgatgtt cagtcaacca aaagactgct  
 ttttcaaaat tggaacgaga ttttggaaat gtaatgataa tctatcgaa agatgttgc  
 ttcatgtatgt atgacagaaa actatcagat atttatcatg atattatatg tgaacaaagg  
 ttacgaactg aagacaaaag agatgaatac ttgttgaatc tgtagagaa agagctgagg  
 gaaatttcaa aggcgagga ttctttgatt tctatgtatg caaagaaaag aaatcatgca 540

tggtttgatt	tcttcagaaaa	tttagcctta	ttaaaagcag	gagagatatt	caggtgcaca	600
tataatacaa	agaatcacgg	tatTCatTC	ggggagggggt	gtatctatct	tgatatggat	660
atgatactta	caggttaagct	tggtacaata	tatgctcctg	atggaatttc	aatgcattgt	720
gatcgtcgta	atgatagtgt	aaatattgaa	aatagtgcac	taattgttaa	ccgttagtaat	780
catcctgctc	tacttgaggg	actttcttt	atgcatagt	aagtatgc	tcatccatat	840
tatgatgggt	tggggaaagg	agttaagaaa	tatTTtaatt	ttacaccatt	acataattat	900
aatcattttt	gtgactttat	tgagtttaac	cacccataa	taatcatgaa	cacaagtcag	960
tatacatgca	gttcatggta	a				981

<210> 61  
<211> 531  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 61						
atgaatgtcc	ttcgagctca	agtagcatct	agcggtcgag	gggagttac	attaggtaat	60
gagactgtca	gcattgtatt	taatgaaacc	gatgggcgtt	ttctatccag	ccgcagtagt	120
gggggattgc	ttacttagtt	gggttaata	acggccctga	agctcttcgc		180
gataggatgc	tcagtagtgc	ttcggactca	ggtgaagcac	aatcgcaaga	gagtattcag	240
gacaaaat	ctcaatgtaa	gttccctgtt	agtcaggaa	atttccagt	cccgccagag	300
tctattcagt	gtccaaattac	actagagaga	cccgaaagaag	gagtgttgt	caaaaattca	360
gatagttcgg	cagtatgc	cttatttgc	tttgcatttgc	tttctcgat	agcttagtga	420
ggctcatatc	atccactgac	ccgagaacca	ataacggcat	caatgattat	aagtccctgat	480
aaatgtgtt	atgatcctat	caagggaaac	ttcattataa	aagatagtt	a	531

<210> 62  
<211> 912  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 62						
atgttatcgc	cctcttctat	aaatttggga	tgttcatgga	attcttaac	cagaaacctg	60
acttcgcctg	ataatcgtgt	tttacccct	gtaagggatg	ctgctgttca	ctctgatagc	120
gggacgcaag	taacgggtgg	caacagaaca	tatcgtgtt	tggtcaact	taataagtt	180
tgcgttacaa	gagaaagtca	tagtgggtgt	tttactaata	tgttgacag	gttggatgg	240
cctaaggag	agattagcag	aaaaattttag	gctatgtga	atacatcgcc	agtggacacg	300
actatagaaa	gaggctctgt	tcattcgaac	agacctgatt	tacctccagt	ggattatgcg	360
cagccggagt	taccccgac	ggattatact	caatcagagt	tgcgcagggt	tagcaacaat	420
aaatcacccg	tgccaggtaa	tgttattgtt	aaagggttga	atgctgtcgt	gtatgaagat	480
atggaagata	caacaaaagt	gttgaagatg	tttactat	ctcaaagcca	tgaagaggtg	540
acaaggcgaag	ttcgttgtt	caatcagat	tatggttccg	ggagtgcaga	gaaaatataat	600
aatgataatg	gaaatgttat	tggtattaga	atgaaataaa	taaatggga	atctcttttgc	660
gatattccat	cattaccaggc	acaagctgaa	caggctattt	acgatatgtt	tgacagactg	720
gagaaaaaaag	gaattctttt	tgttgataca	acagaaacaa	atgtttata	tgatcgat	780
agaaatgaat	ttaatccat	agatataatc	tcttataatg	tttctgtat	ttcatggagt	840
gaacatcaag	tcatgcaatc	ttatcaggg	ggaaagctgg	atcttattag	tgtgttattt	900
agtaagat	aa					912

<210> 63  
<211> 882  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 63						
atgttatcgc	cataattctgt	aaatttggga	tgttcatgga	attcttaac	cagaaacctg	60
acttcgcctg	ataatcgtgt	tttacccct	gtaagggatg	ctgcccgttca	ttctgataat	120
ggggcgcgaag	taaagggtgg	caacagaaca	tatcgtgtt	ttggccaccga	taataagtt	180
tgcgttacaa	gagaaagtca	tagtgggtgt	tttactaata	tgttgacag	gttggatgg	240
cctaaggggg	agattagcag	aaaaattttag	gctatgtga	atgcattcacc	agtggacgct	300
gctatggaaa	gaggcattgt	tcattcgaac	agacctgatt	tacctccgt	tgattatgc	360
ccgcccagagt	taccgagtgt	ggactataac	aggttgcag	tacctggtaa	tgattattggc	420

aaaggggggga acgctgttagt atatgaagat gctgaggatg caacaaaagt cctgaagatg	480
tttactacat ctcaaagcaa tgaagaggtg acaagcgaag ttgcgttgc ttcaaccaatat	540
tatgggtccg ggagtgcaga aaaaatatat ggcaataatg gtgatattat tggattttaga	600
atggataaaa taaatggaga atcgctttt aatatttcgt cttgcgcagc acaggctgag	660
catgctattt acgatatgtt tgatagactg gagcaaaaag gaattcttt tgcgtataca	720
acagagacaa atgtcttata tgaccgcgcg aagaatgagt ttaatcaat agatataatca	780
tcttataatg tttccgaccg ttcatggagt gaaagtcaaa taatgcaatc ttatcatggc	840
ggaaagcaag atcttattag tgtgttatta agtaaaattt ag	882

<210> 64  
<211> 153  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 64	60
atggtaatgc ctggattagt atcatatata tcatcgactt cattcgcaa tgagatggcg	120
gagatgcgtc agcagtaat gaaagggcag attgggtggat ttctcctggg aggggagaga	153
tttagagttt ttatattt tcaatttgc taa	

<210> 65  
<211> 576  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 65	60
atgccattaa cctcagatata tagatcacat tcatttaatc ttgggtgga gttgttcgt	120
gcccgaaattt tagccaatgg ggcggagat attacagtgc gtggtaaac tgcgtattt	180
gtgtatgattt ctactaatgg ggcgttttca tccagtggcg gtaatggcg attgcttct	240
gagttattgc ttttgggatt taatgttgc cctcgagccc ttggtgagag aatgctaagt	300
atgcttcgg actcaggtga agcacaatcg caagagagta ttcaagacaa aatatctcaa	360
tgttaagtttt ctgtttgtcc agagagactt cagtgccgc ttgaggctat tcagtgtcca	420
attacactgg agcagcctga aaaaggtatt ttgtgaaga attcagatgg ttcaagatgt	480
tgtactttat ttgatgcgcg tgcattttc cgttgggtt gtaaggctt accccaccca	540
ctgaccgggg aaccaataac ggcataata attgtaaaac atgaagaatg catttatgac	576
gataccagag gaaacttcat tataaagggt aattga	

<210> 66  
<211> 630  
<212> DNA  
<213> Enterohemorrhagic E. coli

<220>  
<221> misc\_feature  
<222> (439)..(439)  
<223> n = any nucleotide

<400> 66	60
atgcctgtta ccaccctaag tatcccaagt atatctcaat tatctcctgc aagagtacag	120
tctttcagg atgcagccag acttggaaagt ggaataagaa tatccattgg tagtggccaa	180
tattctgttc actatgtcca actactggat ggattttcag ttgaaccggc gagaggaggc	240
ttactggata ggctattggg gcgtgagcat cgaatggata gaaggctgt ggctctggaa	300
aggcaattaa atggagggtt cgattttta agtagtgttata aataactattt tcagagtgtc	360
atggcagaac acagagaaaa taaaacaggt aataaaatataat taaatggaaaa aataaattct	420
tgtgtattt gaaacggattc taatcactt tcttgcggc agtcatggat gacatgccc	480
ataacgctgg acacaccta gactggagtg ttcatgagaa actcagcagg tgctgagata	540
tgctctctat atgataagga tgcgttagt caactgttg aaactgggtt aactcatct	600
ctgagtcgag aacctataac agaatcaatg attatgagaa aagacgaatg tcactttgt	630
gaaaaaagag aagcttttg ttgttaatgt	

<210> 67  
<211> 642

&lt;212&gt; DNA

&lt;213&gt; Enterohemorrhagic E. coli

&lt;400&gt; 67

atgcctgttag	attnaacgccc	ttatatttta	cctggggta	gtttttgtc	tgacattcct	60
caagaaacct	tgtctgagat	acgtaatcag	actattcgtg	gagaagctca	agtaagactg	120
ggtaggttga	tgggtgtcaat	acgacccatg	cagtaaatg	gatattttat	ggaaagtctt	180
aaccaggatg	gtttatcgaa	tgataacatc	cagattggcc	ttcaatatat	agaacatatt	240
gaacgtacac	ttaatcatgg	tagttgaca	agccgtgaag	ttacagtact	gcgtgaaatt	300
gagatgctcg	aaaatatgga	attgcttct	aactaccagt	tagaggagtt	tttagataaa	360
attgaagtat	gtgcatttaa	tgtggagcat	gcacaattgc	aagtgccaga	gagcttacga	420
acatgccctg	ttacattatg	tgaaccagaa	gatgggtat	ttatgaggaa	ttcaatgaat	480
tcaaatgttt	gtatgttga	tgataaaatg	tcattaatat	atcttgttaa	aacaagggcg	540
gctcatcctt	tgagcaggga	atcaatcgca	gttcaatga	ttttaggaag	agataattgt	600
gcttttact	ctgacagagg	taacttcgtt	ttaaaaaatt	aa		642

&lt;210&gt; 68

&lt;211&gt; 642

&lt;212&gt; DNA

&lt;213&gt; Enterohemorrhagic E. coli

&lt;400&gt; 68

atgcctgttag	attnaacgccc	ttatatttta	cctggggta	gtttttgtc	tgacattcct	60
caagaaacct	tgtctgagat	acgtaatcag	actattcgtg	gagaagctca	aataagactg	120
ggtaggttga	tgggtgtcaat	acgacccatg	cagtaaatg	gatattttat	ggaaagtctt	180
aaccaggatg	gtttatcgaa	tgataatatc	cagattggcc	ttcaatatat	agaacatatt	240
gaacgtacac	ttaatcatgg	tagttgaca	agccgtgaag	ttacagtact	gcgtgaaatt	300
gagatgctcg	aaaatatgga	tttgcattct	aactaccagt	tagaggagtt	tttagataaa	360
attgaagtat	gtgcatttaa	tgtggagcat	gcacaattgc	aagtgccaga	gagcttacga	420
acatgccctg	ttacattatg	tgaaccagaa	gatgggtat	ttatgaggaa	ttcaatgaat	480
tcaaatgttt	gtatgttga	tgataaaatg	gcattaatac	atcttgttaa	aacaagggcg	540
gctcatcctt	tgagcaggga	atcaatcgca	gttcaatga	ttttaggaag	agataattgt	600
gcttttacc	ctgacagagg	taacttcgtt	ttaaaaaatt	aa		642

&lt;210&gt; 69

&lt;211&gt; 630

&lt;212&gt; DNA

&lt;213&gt; Enterohemorrhagic E. coli

&lt;400&gt; 69

atgcctgtta	ccaccctaag	tatcccaagt	atatctcaat	tatctcctgc	aggagtacag	60
totttgcagg	atgctgccag	acttgaagaat	ggaataagaa	tatccattgg	tagtggccaa	120
tattctgttc	actatgtcca	gctactggat	ggattttcag	ttgaaccgg	gagaggaggc	180
ttactggata	ggctattggg	gcgtgagcat	cgaatggaga	gaagggctgt	ggctctggaa	240
aggcaattaa	atggagggt	cgattttta	agtagtgtt	ataactattt	tcaagatgtc	300
atggcagaac	acagagaaaa	taaaacaagt	aataaaatat	taatggaaaa	aataaattct	360
tgtttattta	gacctgattc	taatcactt	tcttgcgg	agtcatttt	gacatgcccc	420
ataacgctgg	acacacctga	gactgggtg	ttcatgagaa	actcacgagg	tgctgagata	480
tgctctctat	atgataagga	cgcgttagt	caacttgg	aaactgggt	agctcatcct	540
ctgagtcgag	aacctataac	agaatcaatg	attatgagaa	aagatgaatg	tcactttgat	600
acaaaaagag	aagcttttg	ttgtaaatg				630

&lt;210&gt; 70

&lt;211&gt; 576

&lt;212&gt; DNA

&lt;213&gt; Enterohemorrhagic E. coli

&lt;400&gt; 70

atgccattaa	cctcagat	tagatcacat	tcatttaatc	ttgggtgga	ggttgttct	60
gcccgaattt	tagccaaatgg	gcgcggagat	attacagt	gtggtaaaac	tgtcagtatt	120
gtgtatgatt	ctactaatgg	gcgctttca	tccagtgccg	gtatggcg	attgcttct	180

gagttattgc ttttgggatt taatagtgtt cctcgagccc ttggtgagag aatgctaagt	240
atgccttcgg actcaggtga agcacaatcg caagagagta ttcaagaacaa aatatctcaa	300
tgttaagttt ctgtttgtcc agagagactt cagtccccgc ttgaggctat tcattgtcca	360
attacactgg agcagcctga aaaaggattt tttgtgaaga attcagatgg ttcagatgtta	420
tgtactttat ttgatgccgc tgcattttct cgtttgggtt gtgaaggctt accccaccca	480
ctgaccggg aaccaataac ggcataata attgtaaaac atgaagaatg catttatgac	540
gataccagag gaaacttcgt tataaagggt aattga	576

<210> 71

<211> 510

<212> DNA

<213> Enterohemorrhagic E. coli

<400> 71

atggacgctt ttattttaga tcctgttcaa ggggaactat attcgggttt aagccataca	60
gaactagccg atatcattag attggctgtat tctgttggaa atcaattgaa tggaggcaat	120
tcatttcttg atgtatttcag tacatataatg gggcaggtta tttctgaatt tatgcatagt	180
aatgataaca gaatttgaatt gttacagcgg cgattacatt catgttcatt ttagttat	240
attgaagaaa tgccttacat agatgaagca ttacagtgcc cgattacgct ggcatttcct	300
caacgagggtt ttttttaag aatgtctgaa gggtccagag tatgtatgttt atatgtgaa	360
atggctcttt ctcgtataat taatgtatggg atgcattcacc cactaagcag agagccaata	420
acattatcaa tgcttgcgc cagagagcag tgcgttttgc attgcgttat cggtcacttt	480
acgggtgagga gtgattgtta ttcagtgttag	510

<210> 72

<211> 231

<212> DNA

<213> Enterohemorrhagic E. coli

<400> 72

atggcagacc gcaaacagca cccgcgtatc gcccggcggtc gtcacatcca gactgaaatc	60
aaccgcagac tttcccgccg atcacgcgtc gcccaatca tgcacatcaa tatgctgcat	120
gagcgcagcc acgcactatc aaacattat tccgcctctg ttttcagcta tctggcggat	180
gatctgcacg agtttcaaca gtcacatccag cagcaaaaaca aactccattta a	231

<210> 73

<211> 176

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 73

Met Asn Val Leu Arg Ala Gln Val Ala Ser Ser Gly Arg Gly Glu Phe			
1	5	10	15

Thr Leu Gly Asn Glu Thr Val Ser Ile Val Phe Asn Glu Thr Asp Gly		
20	25	30

Arg Phe Leu Ser Ser Gly Ser Ser Gly Gly Leu Leu Thr Glu Leu Phe		
35	40	45

Leu Tyr Gly Phe Asn Asn Gly Pro Glu Ala Leu Arg Asp Arg Met Leu		
50	55	60

Ser Met Leu Ser Asp Ser Gly Glu Ala Gln Ser Gln Glu Ser Ile Gln			
65	70	75	80

Asp Lys Ile Ser Gln Cys Lys Phe Pro Val Ser Ser Gly Asn Phe Gln		
85	90	95

Cys Pro Pro Glu Ser Ile Gln Cys Pro Ile Thr Leu Glu Arg Pro Glu  
 100 105 110

Glu Gly Val Phe Val Lys Asn Ser Asp Ser Ser Ala Val Cys Cys Leu  
 115 120 125

Phe Asp Phe Asp Ala Phe Ser Arg Leu Ala Ser Glu Gly Ser Tyr His  
 130 135 140

Pro Leu Thr Arg Glu Pro Ile Thr Ala Ser Met Ile Ile Ser Pro Asp  
 145 150 155 160

Lys Cys Val Tyr Asp Pro Ile Lys Gly Asn Phe Ile Ile Lys Asp Ser  
 165 170 175

<210> 74

<211> 303

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 74

Met Leu Ser Pro Ser Ser Ile Asn Leu Gly Cys Ser Trp Asn Ser Leu  
 1 5 10 15

Thr Arg Asn Leu Thr Ser Pro Asp Asn Arg Val Leu Ser Ser Val Arg  
 20 25 30

Asp Ala Ala Val His Ser Asp Ser Gly Thr Gln Val Thr Val Gly Asn  
 35 40 45

Arg Thr Tyr Arg Val Val Val Thr Asp Asn Lys Phe Cys Val Thr Arg  
 50 55 60

Glu Ser His Ser Gly Cys Phe Thr Asn Leu Leu His Arg Leu Gly Trp  
 65 70 75 80

Pro Lys Gly Glu Ile Ser Arg Lys Ile Glu Ala Met Leu Asn Thr Ser  
 85 90 95

Pro Val Ser Thr Thr Ile Glu Arg Gly Ser Val His Ser Asn Arg Pro  
 100 105 110

Asp Leu Pro Pro Val Asp Tyr Ala Gln Pro Glu Leu Pro Pro Ala Asp  
 115 120 125

Tyr Thr Gln Ser Glu Leu Pro Arg Val Ser Asn Asn Lys Ser Pro Val  
 130 135 140

Pro Gly Asn Val Ile Gly Lys Gly Asn Ala Val Val Tyr Glu Asp  
 145 150 155 160

Met Glu Asp Thr Thr Lys Val Leu Lys Met Phe Thr Ile Ser Gln Ser  
 165 170 175

His Glu Glu Val Thr Ser Glu Val Arg Cys Phe Asn Gln Tyr Tyr Gly  
 180 185 190

Ser Gly Ser Ala Glu Lys Ile Tyr Asn Asp Asn Gly Asn Val Ile Gly  
 195 200 205

Ile Arg Met Asn Lys Ile Asn Gly Glu Ser Leu Leu Asp Ile Pro Ser  
 210 215 220  
  
 Leu Pro Ala Gln Ala Glu Gln Ala Ile Tyr Asp Met Phe Asp Arg Leu  
 225 230 235 240  
  
 Glu Lys Lys Gly Ile Leu Phe Val Asp Thr Thr Glu Thr Asn Val Leu  
 245 250 255  
  
 Tyr Asp Arg Met Arg Asn Glu Phe Asn Pro Ile Asp Ile Ser Ser Tyr  
 260 265 270  
  
 Asn Val Ser Asp Ile Ser Trp Ser Glu His Gln Val Met Gln Ser Tyr  
 275 280 285  
  
 His Gly Gly Lys Leu Asp Leu Ile Ser Val Val Leu Ser Lys Ile  
 290 295 300  
  
 <210> 75  
 <211> 293  
 <212> PRT  
 <213> Enterohemorrhagic E. coli  
  
 <400> 75  
  
 Met Leu Ser Pro Tyr Ser Val Asn Leu Gly Cys Ser Trp Asn Ser Leu  
 1 5 10 15  
  
 Thr Arg Asn Leu Thr Ser Pro Asp Asn Arg Val Leu Ser Ser Val Arg  
 20 25 30  
  
 Asp Ala Ala Val His Ser Asp Asn Gly Ala Gln Val Lys Val Gly Asn  
 35 40 45  
  
 Arg Thr Tyr Arg Val Val Ala Thr Asp Asn Lys Phe Cys Val Thr Arg  
 50 55 60  
  
 Glu Ser His Ser Gly Cys Phe Thr Asn Leu Leu His Arg Leu Gly Trp  
 65 70 75 80  
  
 Pro Lys Gly Glu Ile Ser Arg Lys Ile Glu Val Met Leu Asn Ala Ser  
 85 90 95  
  
 Pro Val Ser Ala Ala Met Glu Arg Gly Ile Val His Ser Asn Arg Pro  
 100 105 110  
  
 Asp Leu Pro Pro Val Asp Tyr Ala Pro Pro Glu Leu Pro Ser Val Asp  
 115 120 125  
  
 Tyr Asn Arg Leu Ser Val Pro Gly Asn Val Ile Gly Lys Gly Gly Asn  
 130 135 140  
  
 Ala Val Val Tyr Glu Asp Ala Glu Asp Ala Thr Lys Val Leu Lys Met  
 145 150 155 160  
  
 Phe Thr Thr Ser Gln Ser Asn Glu Glu Val Thr Ser Glu Val Arg Cys  
 165 170 175  
  
 Phe Asn Gln Tyr Tyr Gly Ala Gly Ser Ala Glu Lys Ile Tyr Gly Asn  
 180 185 190

Asn Gly Asp Ile Ile Gly Ile Arg Met Asp Lys Ile Asn Gly Glu Ser  
 195 200 205

Leu Leu Asn Ile Ser Ser Leu Pro Ala Gln Ala Glu His Ala Ile Tyr  
 210 215 220

Asp Met Phe Asp Arg Leu Glu Gln Lys Gly Ile Leu Phe Val Asp Thr  
 225 230 235 240

Thr Glu Thr Asn Val Leu Tyr Asp Arg Ala Lys Asn Glu Phe Asn Pro  
 245 250 255

Ile Asp Ile Ser Ser Tyr Asn Val Ser Asp Arg Ser Trp Ser Glu Ser  
 260 265 270

Gln Ile Met Gln Ser Tyr His Gly Gly Lys Gln Asp Leu Ile Ser Val  
 275 280 285

Val Leu Ser Lys Ile  
 290

<210> 76

<211> 50

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 76

Met Val Met Pro Gly Leu Val Ser Tyr Ile Ser Ser Thr Ser Phe Ala  
 1 5 10 15

Asn Glu Met Ala Glu Met Arg Gln Gln Val Met Glu Gly Gln Ile Gly  
 20 25 30

Gly Phe Leu Leu Gly Gly Glu Arg Val Arg Val Ser Tyr Leu Phe Gln  
 35 40 45

Leu His  
 50

<210> 77

<211> 191

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 77

Met Pro Leu Thr Ser Asp Ile Arg Ser His Ser Phe Asn Leu Gly Val  
 1 5 10 15

Glu Val Val Arg Ala Arg Ile Val Ala Asn Gly Arg Gly Asp Ile Thr  
 20 25 30

Val Gly Gly Glu Thr Val Ser Ile Val Tyr Asp Ser Thr Asn Gly Arg  
 35 40 45

Phe Ser Ser Ser Gly Gly Asn Gly Gly Leu Leu Ser Glu Leu Leu Leu  
 50 55 60

Leu Gly Phe Asn Ser Gly Pro Arg Ala Leu Gly Glu Arg Met Leu Ser  
 65 70 75 80

Met Leu Ser Asp Ser Gly Glu Ala Gln Ser Gln Glu Ser Ile Gln Asn  
 85 90 95

Lys Ile Ser Gln Cys Lys Phe Ser Val Cys Pro Glu Arg Leu Gln Cys  
 100 105 110

Pro Leu Glu Ala Ile Gln Cys Pro Ile Thr Leu Glu Gln Pro Glu Lys  
 115 120 125

Gly Ile Phe Val Lys Asn Ser Asp Gly Ser Asp Val Cys Thr Leu Phe  
 130 135 140

Asp Ala Ala Ala Phe Ser Arg Leu Val Gly Glu Gly Leu Pro His Pro  
 145 150 155 160

Leu Thr Arg Glu Pro Ile Thr Ala Ser Ile Ile Val Lys His Glu Glu  
 165 170 175

Cys Ile Tyr Asp Asp Thr Arg Gly Asn Phe Ile Ile Lys Gly Asn  
 180 185 190

<210> 78

<211> 209

<212> PRT

<213> Enterohemorrhagic E. coli

<220>

<221> MISC\_FEATURE

<222> (147)..(147)

<223> Xaa = any amino acid

<400> 78

Met Pro Val Thr Thr Leu Ser Ile Pro Ser Ile Ser Gln Leu Ser Pro  
 1 5 10 15

Ala Arg Val Gln Ser Leu Gln Asp Ala Ala Arg Leu Glu Ser Gly Ile  
 20 25 30

Arg Ile Ser Ile Gly Ser Gly Gln Tyr Ser Val His Tyr Val Gln Leu  
 35 40 45

Leu Asp Gly Phe Ser Val Glu Pro Val Arg Gly Gly Leu Leu Asp Arg  
 50 55 60

Leu Leu Gly Arg Glu His Arg Met Asp Arg Arg Ala Val Ala Leu Glu  
 65 70 75 80

Arg Gln Leu Asn Gly Gly Val Asp Phe Leu Ser Ser Val Asn Asn Tyr  
 85 90 95

Phe Gln Ser Val Met Ala Glu His Arg Glu Asn Lys Thr Gly Asn Lys  
 100 105 110

Ile Leu Met Glu Lys Ile Asn Ser Cys Val Phe Gly Thr Asp Ser Asn  
 115 120 125

His Phe Ser Cys Pro Glu Ser Phe Leu Thr Cys Pro Ile Thr Leu Asp  
 130 135 140

Thr	Pro	Xaa	Thr	Gly	Val	Phe	Met	Arg	Asn	Ser	Arg	Gly	Ala	Glu	Ile
145					150					155				160	

  

Cys	Ser	Leu	Tyr	Asp	Lys	Asp	Ala	Leu	Val	Gln	Leu	Val	Glu	Thr	Gly
					165				170				175		

  

Gly	Thr	His	Pro	Leu	Ser	Arg	Glu	Pro	Ile	Thr	Glu	Ser	Met	Ile	Met
					180			185				190			

  

Arg	Lys	Asp	Glu	Cys	His	Phe	Asp	Ala	Lys	Arg	Glu	Ala	Phe	Cys	Cys
					195			200				205			

Lys

<210> 79  
 <211> 213  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<400> 79

Met	Pro	Val	Asp	Leu	Thr	Pro	Tyr	Ile	Leu	Pro	Gly	Val	Ser	Phe	Leu
1				5					10				15		

Ser	Asp	Ile	Pro	Gln	Glu	Thr	Leu	Ser	Glu	Ile	Arg	Asn	Gln	Thr	Ile
				20				25				30			

Arg	Gly	Glu	Ala	Gln	Val	Arg	Leu	Gly	Glu	Leu	Met	Val	Ser	Ile	Arg
				35				40			45				

Pro	Met	Gln	Val	Asn	Gly	Tyr	Phe	Met	Gly	Ser	Leu	Asn	Gln	Asp	Gly
				50			55			60					

Leu	Ser	Asn	Asp	Asn	Ile	Gln	Ile	Gly	Leu	Gln	Tyr	Ile	Glu	His	Ile
					65		70		75				80		

Glu	Arg	Thr	Leu	Asn	His	Gly	Ser	Leu	Thr	Ser	Arg	Glu	Val	Thr	Val
					85				90			95			

Leu	Arg	Glu	Ile	Glu	Met	Leu	Glu	Asn	Met	Glu	Leu	Leu	Ser	Asn	Tyr
					100			105			110				

Gln	Leu	Glu	Glu	Leu	Leu	Asp	Lys	Ile	Glu	Val	Cys	Ala	Phe	Asn	Val
					115			120			125				

Glu	His	Ala	Gln	Leu	Gln	Val	Pro	Glu	Ser	Leu	Arg	Thr	Cys	Pro	Val
					130			135			140				

Thr	Leu	Cys	Glu	Pro	Glu	Asp	Gly	Val	Phe	Met	Arg	Asn	Ser	Met	Asn
					145			150			155			160	

Ser	Asn	Val	Cys	Met	Leu	Tyr	Asp	Lys	Met	Ser	Leu	Ile	Tyr	Leu	Val
					165				170			175			

Lys	Thr	Arg	Ala	Ala	His	Pro	Leu	Ser	Arg	Glu	Ser	Ile	Ala	Val	Ser
					180			185			190				

Met	Ile	Val	Gly	Arg	Asp	Asn	Cys	Ala	Phe	Asp	Ser	Asp	Arg	Gly	Asn
					195			200			205				

Phe Val Leu Lys Asn  
210

<210> 80  
<211> 213  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 80  
Met Pro Val Asp Leu Thr Pro Tyr Ile Leu Pro Gly Val Ser Phe Leu  
1 5 10 15

Ser Asp Ile Pro Gln Glu Thr Leu Ser Glu Ile Arg Asn Gln Thr Ile  
20 25 30

Arg Gly Glu Ala Gln Ile Arg Leu Gly Glu Leu Met Val Ser Ile Arg  
35 40 45

Pro Met Gln Val Asn Gly Tyr Phe Met Gly Ser Leu Asn Gln Asp Gly  
50 55 60

Leu Ser Asn Asp Asn Ile Gln Ile Gly Leu Gln Tyr Ile Glu His Ile  
65 70 75 80

Glu Arg Thr Leu Asn His Gly Ser Leu Thr Ser Arg Glu Val Thr Val  
85 90 95

Leu Arg Glu Ile Glu Met Leu Glu Asn Met Asp Leu Leu Ser Asn Tyr  
100 105 110

Gln Leu Glu Glu Leu Leu Asp Lys Ile Glu Val Cys Ala Phe Asn Val  
115 120 125

Glu His Ala Gln Leu Gln Val Pro Glu Ser Leu Arg Thr Cys Pro Val  
130 135 140

Thr Leu Cys Glu Pro Glu Asp Gly Val Phe Met Arg Asn Ser Met Asn  
145 150 155 160

Ser Asn Val Cys Met Leu Tyr Asp Lys Met Ala Leu Ile His Leu Val  
165 170 175

Lys Thr Arg Ala Ala His Pro Leu Ser Arg Glu Ser Ile Ala Val Ser  
180 185 190

Met Ile Val Gly Arg Asp Asn Cys Ala Phe Asp Pro Asp Arg Gly Asn  
195 200 205

Phe Val Leu Lys Asn  
210

<210> 81  
<211> 209  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 81

Met Pro Val Thr Thr Leu Ser Ile Pro Ser Ile Ser Gln Leu Ser Pro  
1 5 10 15

Ala Gly Val Gln Ser Leu Gln Asp Ala Ala Arg Leu Glu Ser Gly Ile  
 20 25 30

Arg Ile Ser Ile Gly Ser Gly Gln Tyr Ser Val His Tyr Val Gln Leu  
 35 40 45

Leu Asp Gly Phe Ser Val Glu Pro Val Arg Gly Gly Leu Leu Asp Arg  
 50 55 60

Leu Leu Gly Arg Glu His Arg Met Glu Arg Arg Ala Val Ala Leu Glu  
 65 70 75 80

Arg Gln Leu Asn Gly Gly Val Asp Phe Leu Ser Ser Val Asn Asn Tyr  
 85 90 95

Phe Gln Ser Val Met Ala Glu His Arg Glu Asn Lys Thr Ser Asn Lys  
 100 105 110

Ile Leu Met Glu Lys Ile Asn Ser Cys Leu Phe Arg Pro Asp Ser Asn  
 115 120 125

His Phe Ser Cys Pro Glu Ser Phe Leu Thr Cys Pro Ile Thr Leu Asp  
 130 135 140

Thr Pro Glu Thr Gly Val Phe Met Arg Asn Ser Arg Gly Ala Glu Ile  
 145 150 155 160

Cys Ser Leu Tyr Asp Lys Asp Ala Leu Val Gln Leu Val Glu Thr Gly  
 165 170 175

Gly Ala His Pro Leu Ser Arg Glu Pro Ile Thr Glu Ser Met Ile Met  
 180 185 190

Arg Lys Asp Glu Cys His Phe Asp Thr Lys Arg Glu Ala Phe Cys Cys  
 195 200 205

Lys

<210> 82  
 <211> 191  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<400> 82

Met Pro Leu Thr Ser Asp Ile Arg Ser His Ser Phe Asn Leu Gly Val  
 1 5 10 15

Glu Val Val Arg Ala Arg Ile Val Ala Asn Gly Arg Gly Asp Ile Thr  
 20 25 30

Val Gly Gly Glu Thr Val Ser Ile Val Tyr Asp Ser Thr Asn Gly Arg  
 35 40 45

Phe Ser Ser Ser Gly Gly Asn Gly Leu Leu Ser Glu Leu Leu Leu  
 50 55 60

Leu Gly Phe Asn Ser Gly Pro Arg Ala Leu Gly Glu Arg Met Leu Ser  
 65 70 75 80

Met Leu Ser Asp Ser Gly Glu Ala Gln Ser Gln Glu Ser Ile Gln Asn  
       85                 90                 95  
  
 Lys Ile Ser Gln Cys Lys Phe Ser Val Cys Pro Glu Arg Leu Gln Cys  
       100             105             110  
  
 Pro Leu Glu Ala Ile Gln Cys Pro Ile Thr Leu Glu Gln Pro Glu Lys  
       115             120             125  
  
 Gly Ile Phe Val Lys Asn Ser Asp Gly Ser Asp Val Cys Thr Leu Phe  
       130             135             140  
  
 Asp Ala Ala Ala Phe Ser Arg Leu Val Gly Glu Gly Leu Pro His Pro  
       145             150             155             160  
  
 Leu Thr Arg Glu Pro Ile Thr Ala Ser Ile Ile Val Lys His Glu Glu  
       165             170             175  
  
 Cys Ile Tyr Asp Asp Thr Arg Gly Asn Phe Val Ile Lys Gly Asn  
       180             185             190  
  
 <210> 83  
 <211> 169  
 <212> PRT  
 <213> Enterohemorrhagic E. coli  
  
 <400> 83  
  
 Met Asp Ala Phe Ile Val Asp Pro Val Gln Gly Glu Leu Tyr Ser Gly  
   1              5                 10                 15  
  
 Leu Ser His Thr Glu Leu Ala Asp Ile Ile Arg Leu Ala Asp Ser Val  
   20             25             30  
  
 Glu Asn Gln Leu Asn Gly Gly Asn Ser Phe Leu Asp Val Phe Ser Thr  
   35             40             45  
  
 Tyr Met Gly Gln Val Ile Ser Glu Phe Met His Ser Asn Asp Asn Arg  
   50             55             60  
  
 Ile Glu Leu Leu Gln Arg Arg Leu His Ser Cys Ser Phe Leu Val Asn  
   65             70             75             80  
  
 Ile Glu Glu Met Ser Tyr Ile Asp Glu Ala Leu Gln Cys Pro Ile Thr  
   85             90             95  
  
 Leu Ala Ile Pro Gln Arg Gly Val Phe Leu Arg Asn Ala Glu Gly Ser  
   100            105            110  
  
 Arg Val Cys Ser Leu Tyr Asp Glu Met Ala Leu Ser Arg Ile Ile Asn  
   115            120            125  
  
 Asp Gly Met His His Pro Leu Ser Arg Glu Pro Ile Thr Leu Ser Met  
   130            135            140  
  
 Leu Val Ala Arg Glu Gln Cys Glu Phe Asp Cys Ser Ile Gly His Phe  
   145            150            155             160  
  
 Thr Val Arg Ser Asp Cys Tyr Ser Val  
   165

<210> 84  
<211> 76  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 84

Met Ala Asp Arg Lys Gln His Arg Ala Ile Ala Glu Arg Arg His Ile  
1 5 10 15

Gln Thr Glu Ile Asn Arg Arg Leu Ser Arg Ala Ser Arg Val Ala Gln  
20 25 30

Ile Met His Ile Asn Met Leu His Glu Arg Ser His Ala Leu Ser Asn  
35 40 45

Ile Tyr Ser Ala Ser Val Phe Ser Tyr Leu Ala Asp Asp Leu His Glu  
50 55 60

Phe Gln Gln Leu Ile Gln Gln Asn Lys Leu His  
65 70 75